A Dissertation on

EVALUATION OF SAFETY, EFFICACY AND CONTINUATION RATES OF POSTPARTUM INTRAUTERINE CONTRACEPTIVE DEVICES (PPIUCD)

Dissertation submitted to
THE TAMIL NADU DR.M.G.R.MEDICAL UNIVERSITY
CHENNAI- 600 032

With partial fulfillment of the regulations
For the award of the degree of

M.S. (OBSTETRICS AND GYNAECOLOGY)

COIMBATORE MEDICAL COLLEGE

COIMBATORE

APRIL 2016

DECLARATION

DECLARATION

I, **Dr. CHANDRA VADHANA. K**, solemnly declare that the dissertation entitled "**EVALUATION OF SAFETY, EFFICACY AND CONTINUATION RATES OF POSTPARTUM INTRAUTERINE CONTRACEPTIVE DEVICES (PPIUCD)"** was done by me in the Department of Obstetrics and Gynaecology at Coimbatore Medical College Hospital during the period from August 2014 to July 2015 under guidance and supervision of **Dr. V.RAJALAKSHMI M.D.,D.G.O.,** Associate Professor, Department of Obstetrics and Gynaecology at Coimbatore Medical College Hospital, Coimbatore. The dissertation is submitted to the Tamil Nadu Dr.M.G.R Medical University, Chennai towards the partial fulfillment of the requirement for the award of M.S., degree in Obstetrics and Gynaecology. I have not submitted this dissertation on any previous occasion to any university for the award of any degree**.**

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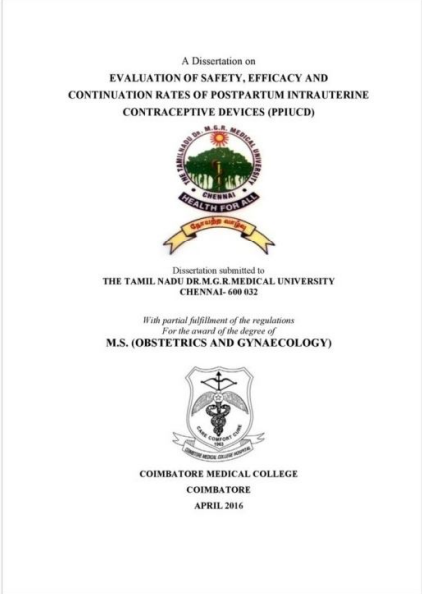

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Signature of the candidate

Name: Dr. CHANDRA VADHANA, K

Date:

Place: **Coimbatore**

LIST OF ABBREVIATIONS

List of Abbreviations used

PPIUCD	Postpartum intrauterine contraceptive device
IUCD	Intrauterine contraceptive device
Cu T	Copper T
HMB	Heavy menstrual bleeding
AIDS	Acquired immunodeficiency syndrome
HIV	Human immunodeficiency virus
ART	Anti retroviral therapy
SGA	Small for gestational age
LAM	Lactational Amenorrhoea Method
LN	Labour Natural
LSCS	Lower Segment Caesarean Section
FP	Family planning
PID	Pelvic inflammatory disease
STD	Sexually transmitted disease
MEC	Medical eligibility criteria
TB	Tuberculosis
CIN	Cervical intraepithelial neoplasia

WHO	World Health Organization
PPH	Postpartum haemorrhage
HLD	High level disinfection
NSAID's	Non steroidal anti inflammatory drugs
CBC	Complete blood count
ANM	Auxiliary nurse midwife
ASHA	Accredited social health activist
PROM	Prelabour rupture of membranes
OCP	Oral contraceptive pill
USG	Ultrasonography
TVS	Transvaginal sonography
TAS	Transabdominal sonography

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ABSTRACT

BACKGROUND

Family planning with adequate spacing between the pregnancies can prevent about 32% of maternal deaths and 10% of child mortality. Pregnancies with less than the recommended spacing are associated with increased maternal as well child mortality and morbidity. Among the options available, the multi-year cost of Cu T 380A makes it one of the most cost effective contraceptive available.

AIMS AND OBJECTIVES

To evaluate the safety, efficacy and continuation rates of postpartum intrauterine contraceptive devices (PPIUCD).

METHODOLOGY

This is a prospective study done at the Department of Obstetrics and Gynaecology, Coimbatore Medical College Hospital from August 2014 to July 2015. After obtaining informed consent, 200 women who fulfilled the inclusion criteria underwent postpartum insertion of Cu T 380A. They were followed up at 6 weeks, 3 months and 6 months postpartum.

RESULTS

Out of the 200 women who underwent PPIUCD insertion (41.5% post placental, 20.5% immediate postpartum and 38% intracaesarean), majority of them were aged between 21-25 years (51.5%), most of them had studied up to middle school (29.5%) , 95% were housewives, 54% of them belonged to lower

socioeconomic status, 77% were para 1, 78.5% had 1 living child. The gross cumulative expulsion, removal and continuation rates were 5%, 6% and 78.5%. There were no cases of perforation, pelvic infection, pregnancy with IUCD in situ or other major complications noted.

CONCLUSION

PPIUCD is a safe, very effective, long acting contraception with few side effects and no major complications. Although the expulsion rates are high when compared to interval insertion, PPIUCD provide an effective contraception in countries with limited access to health care personnel.

KEY WORDS

Postpartum Intrauterine Contraceptive Device (PPIUCD), Expulsion, Contraception.

INTRODUCTION

INTRODUCTION

India is the second most populous country in the world (17.5% of the population & 25 million live births annually). Family planning with adequate spacing between the pregnancies can prevent about 32% of maternal deaths and 10% of child mortality.[1] Pregnancies with less than the recommended spacing result in spontaneous abortion, preterm labour, SGA babies, postpartum haemorrhage, fetal deaths and maternal deaths.[2-8.] Hence it is important to link newborn, maternal as well as contraceptive services at all the levels.

The recommended interval between 2 births is at least 3 years for a healthy pregnancy. 61% of the births in India have less than 3 years of spacing as per the third National Family Health Survey conducted in the year 2005-2006 [9] (27% births were spaced less than 2 years and 34% births between 24 to 35 months). The interval between a delivery and the subsequent pregnancy should be at least 2 years but not more than 5 years. In our country, the unmet family planning need is 65% in the first year of postpartum period [10] and FP methods are used by 26% of the women only during this period.[11] Besides 8% of women want another child within 2 years following delivery.[12]

During the first 3 months after a delivery, exclusive breast feeding is followed by >55% and by the end of 1 year this becomes nearly zero percent. In women who are not breast feeding or those who partially breast feeding, menses occurs within 4 to 6 weeks after delivery and ovulation can occur within 45 days [13] and thus are exposed to increased pregnancy risk.

To avoid pregnancy, all the 3 criteria for Lactationa Amenorrhoea Method (LAM) must be followed.[14, 15] They are exclusive breast feeding during the day and night, amenorrhoea and baby should be less than 6 months. In women who experience amenorrhoea, there is a possibility that ovulation has occurred even earlier. Also women who are not exclusively breast feeding and those who do not satisfy LAM may experience amenorrhoea. As a result, amenorrhoea after delivery is not a reliable indicator to ensure that the woman will not become pregnant.

About 40% of the women resume sexual activity within 3months postpartum and 90% of the women resume sexual activity within 10-12 months.[12.] At present, the emphasis is to offer high quality services to eligible clients on a voluntary basis. The immediate objective of the National Population Policy introduced in the year 2000 was to address the need for contraception which was unmet. Its medium term goal was to bring the Net Reproductive Rate to one by the year 2010. Its long term goal was to stabilize the population by the year 2045. In countries like India, the only time a healthy woman contacts a health care provider is during delivery and many do not return for follow up. Also during this time the woman is very much motivated and receptive to family planning advice. Hence waiting till 6 months postpartum for initiating a birth control method puts them at increased risk of unplanned pregnancies. IUCD's are highly effective, safe, long acting, coitus independent, cost effective[16] and fertility returns quickly as soon it is removed.[17-21]

According to the Medical Eligibility Criteria by World Health Organization, IUCD insertion within 48 hours after delivery is safe and highly effective .[22] In India, IUCD use is by only 2% of current contraceptive users.[9] The National Family Welfare Programme was started by the Government of India in 1965 in which the Lippes Loop was first introduced. The Indian Council of Medical Research conducted clinical trials in 1972 and based on its results the Copper T 200B replaced the Lippes Loop in 1975. In 1997, a comparative study was conducted between Copper T 200B and Copper T 380A and based on this , the Cu T 380A replaced the Cu T 200B in the year 2002. At present the Copper T 380A is used by the government for immediate postpartum insertion. Cu-375 (Multi Load is the popular commercial name) is approved now for use in the private sector.

With increase in institutional deliveries, the Government of India decided to introduce the PPIUCD in phased manner thus strengthening family planning services. The clinical trainings were first started in 2009. A training centre at the national level was started at Safdarjung Hospital at New Delhi and 3 training centres at the regional level were started at Mumbai, Lucknow and Jabalpur in the year 2009-2010. By 2013, the PPIUCD services were available in at least nineteen states. Earlier studies have shown high expulsion rates of about 9-13% .[23-25.] Recent studies have shown that with better insertion techniques, the expulsion rates can be lowered.[26, 27]

As PPIUCDs are an emerging contraceptive choice in India, we still rely on international studies for follow-up data. Given the scale at which PPIUCD services are being introduced in India, it is important to generate country-based evidence about the PPIUCD. This would lead to an improved infrastructure with better trained health care personnel who provide evidence-based services.

AIMS AND OBJECTIVES

AIMS

To evaluate the safety, efficacy and continuation rates of postpartum intrauterine contraceptive devices (PPIUCD).

OBJECTIVES

1. To assess the safety of PPIUCD by incidence of perforation, pelvic infection, heavy menstrual bleeding, unusual vaginal discharge, pain abdomen.

2. To assess the efficacy of PPIUCD by expulsion rate and unplanned pregnancy with IUCD *in situ.*

3. To determine the continuation rates of PPIUCD.

REVIEW OF LITERATURE

REVIEW OF LITERATURE

Graffenberg developed the 1st IUCD in the year 1909. Subsequently, Lippes Loop was developed by Jack Lippes during the 1960s. Nowadays, different types of IUCDs are used.[28] IUCDs are the most common reversible contraception used worldwide with approximately 127 million users. [29]

The Cu T 380A is a copper bearing intrauterine device which is T- shaped, of length 3.6 cm and width 3.2 cm, made up of polyethylene. It is impregnated with barium sulphate for radio opacity. 314 $mm^2$of copper wire is wound up around the vertical stem and two copper sleeves of 33 mm^2 on each transverse arm. To facilitate easy removal and also for the patient's easy detection, two trans-cervical nylon threads are fixed to the bottom of the vertical stem. Pre packed sterile Cu T's are available.[28, 30]

The government programme uses Cu T 380A for postpartum insertion. Multi load Cu-375 has been approved for private sector use and the government plans to introduce it in the FP programme.[28]

All copper containing IUCD's have a number as a part of their name which represents the surface area (in square millimeters) of copper present in the IUCD.[31]The IUCD's are free of latex and copper allergy is extremely rare.[32]

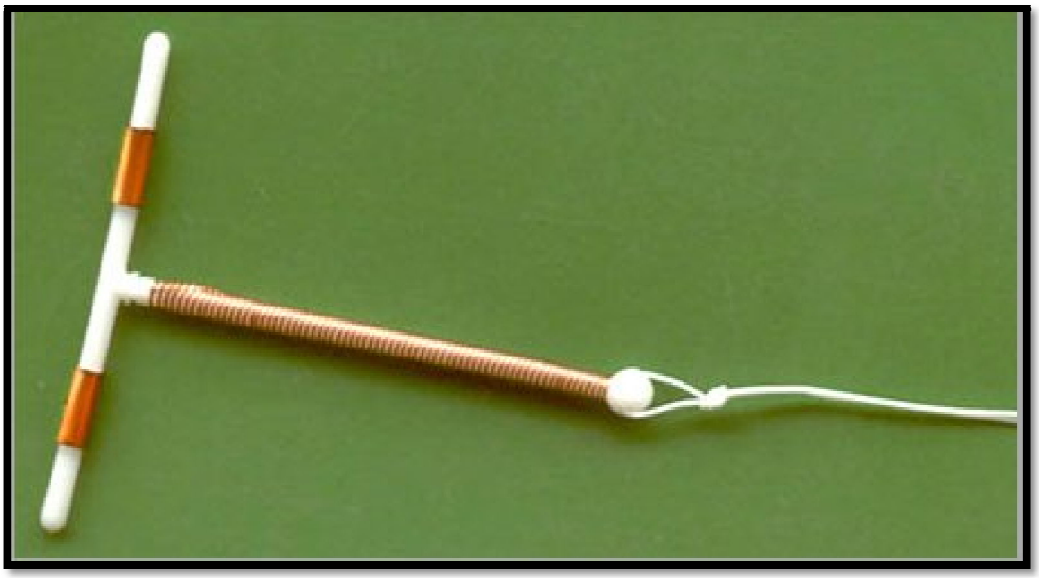


Fig 1a. Cu T 380A

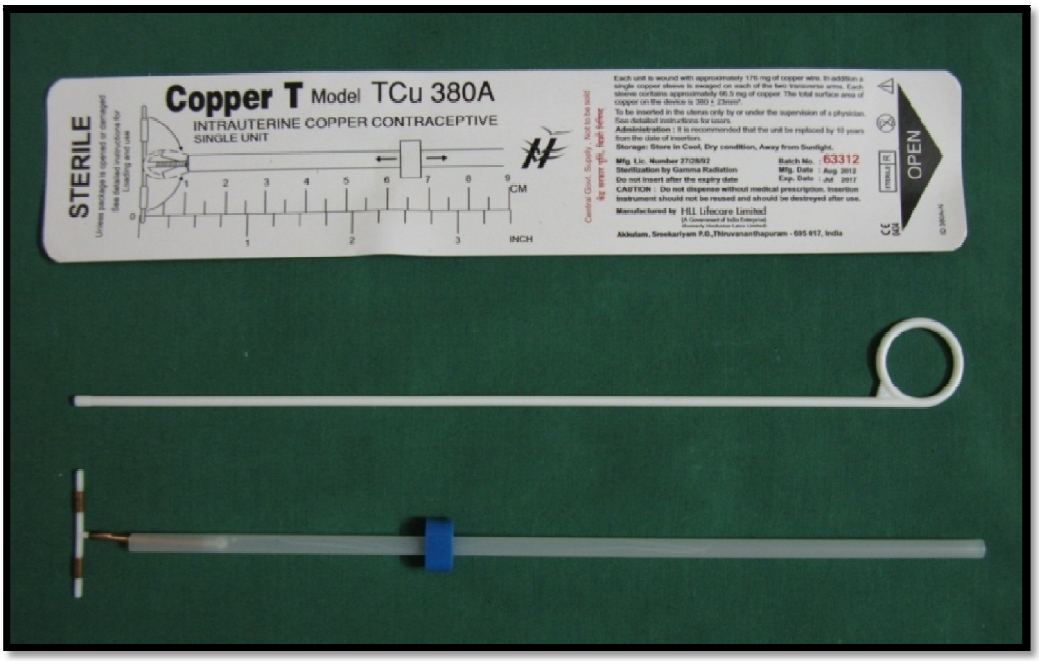


Fig 1b. Cu T 380A

TYPES OF IUCD INSERTION [12]

1) Post placental

In the time period after placental delivery up to 10 minutes, the IUCD can be inserted. This is done on the delivery table itself before the woman is shifted. There are two techniques of post placental insertion

A. Instrumental insertion

Long placental forceps / Kelly's forceps (without lock) is used to reach up to the uterine fundus.

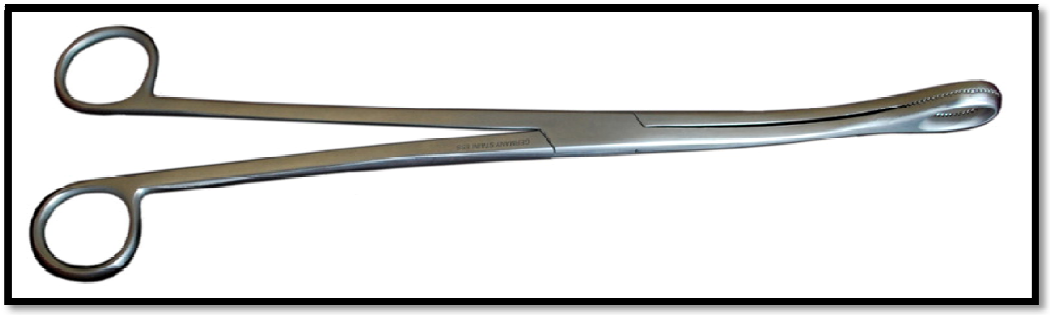


Fig 2. Kelly's Placental forceps

B. Manual insertion

The provider holds the IUCD in the hand and using long gloves for protection reaching up to the midway of the arm inserts the IUCD.

2) Intracaesarean

During caesarean section, after removal of placenta, through uterine incision, IUCD is inserted either manually or using ring forceps. Long instrument is not necessary to reach up to the uterine fundus. Attempt should not be made to pass the IUCD strings into the cervical os, as it will lead to displacement of IUCD. Care should be taken not to include the IUCD strings in the uterine ligature.

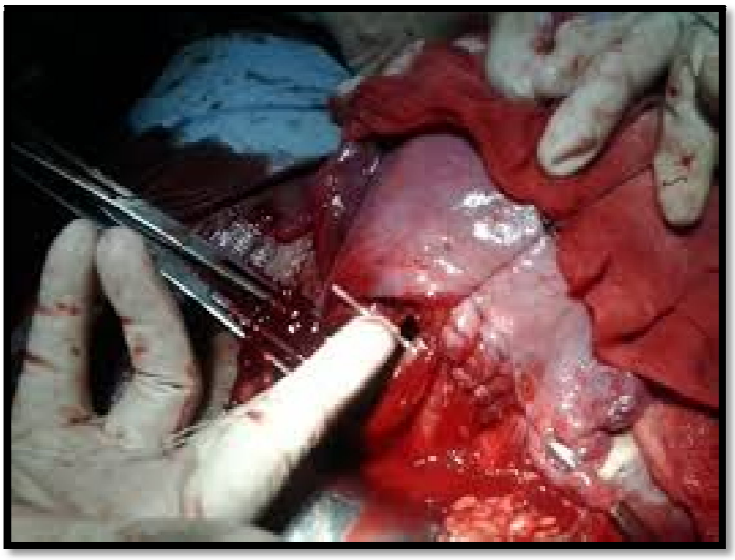


Fig 3. Intracaesarean insertion of IUCD

3) Immediate postpartum

In the time period following delivery up to 48 hours, the IUCD can be inserted. Insertion is done before discharge of the patient from the ward.

4) Extended postpartum or interval IUCD

Insertion of IUCD can be done at 6 weeks or later after delivery, when the woman returns to the hospital for postpartum check up.

Between 48 hours and 6 weeks after delivery, the risk of infection and expulsion is more. Hence insertion of IUCD is not done during this period.

5) Post abortal

IUCD can be inserted after an abortion, if there are no contraindications, bleeding or infection.[22,33,34,44]

MECHANISM OF ACTION

Recent studies have concluded that IUCD's act primarily by preventing fertilization of the ovum by the sperms.[12,30,35,36]

Copper ions alter the fluid in the uterus and tubes, thus sperm motility and sperm function are reduced. In the endometrium, it causes a foreign body or inflammatory reaction, phagocytosis and also prevents blastocyst implantation.[30,37] Cytotoxic peptides are produced and enzymes are activated, thus motility of sperms, sperm capacitation and survival are affected.[38]

EFFECTIVENESS [12]

- Cu T 380 A is more than 99% effective.
- It begins working immediately and is effective for 10 years.[39,43] However, it can be used for any period of time the woman prefers for up to 10 years.
- It has a failure rate of 0.6 to 0.8 pregnancies/ 100 women during the first year of usage.[40]
- In the first 3 months about 5-10 women/100 may have expulsion of IUCD.

ADVANTAGES[12]

PPIUCD insertion is beneficial to the women as they have competing demands after delivery and an additional visit to the hospital would not be required. After delivery, motivation and receptivity to family planning is high. PPIUCD insertion is safe because pregnancy can be ruled out with certainty. Perforation due to an IUCD placed before 48 hours after delivery is unlikely as the

uterine wall is thick. Initial side effects like bleeding and cramping are less perceived by the woman.[41] As the woman is amenorrhoeic, heavy bleeding is reduced particularly among those using the lactational amenorrhoea method. It does not affect the breast milk amount and quality.

PPIUCD insertion is also beneficial to the clinical staff as it saves time, further evaluation and separate procedure is not necessary. Only few additional instruments and equipment are needed. The same delivery table can be used for the procedure.

LIMITATIONS [12]

PPIUCD has increased risk of spontaneous expulsion when compared to interval insertions. By using skilled clinicians and right techniques, expulsion rates are lowered.

COUNSELLING[12]

The woman should be counselled about the PPIUCD along with her husband and/ or mother in law if she prefers. Counselling is an important aspect especially in areas where misconceptions regarding the method are present due to low awareness.

Women are ideally counselled in the antenatal period. If this was not possible, she is informed about the PPIUCD during admission. Counselling may also be done during early labour if the woman is comfortable, having infrequent contractions and is able to focus on the information provided to her. Counselling

can be done on the first postpartum day if it was not possible earlier or prior to caesarean section.

The clients should be provided basic information about the IUCD. They should be informed that the IUCD is a small plastic device that would be kept in the uterus. They should also be told about its safety, effectiveness, convenience, mechanism of action, time of insertion, course of protection, return of fertility, advantages, disadvantages, limitations, health benefits, possible risks and follow up required.

CHECK LIST FOR PPIUCD COUNSELLING

The checklist is for improving the performance of the provider and the quality of counselling services. The counselor/ provider should use this checklist for assessment.

GREET

- First a trusting relationship should be established between the client and the provider. She is given respect and made comfortable.
- A good rapport is established.
- The provider should listen to the concerns and the needs of the client.
- The client's family members-husband or any family member may accompany her if she prefers it.

ASK

- She is enquired about her reproductive goals, her previous experiences in family planning if any, reason for discontinuation and the problems that she experienced with the method.
- She is also asked if she has interest in any particular family planning method.
- Her knowledge about the benefits of spacing pregnancy is asked.
- The attitude of her family regarding family planning is ascertained.
- Her risk for acquiring STD is assessed. The use of condom is supported as a method of preventing transmission of STD.

TELL

- Basic information about the advantages (medical, economical and social) of correct spacing is explained.
- She is advised to wait at least 2 years before getting pregnant to ensure her health as well as her baby's health.
- The criteria for lactational amenorrhoea method are explained to her.
- She is told about the possibility of fertility regaining even before the onset of menses in the postpartum period and the pregnancy risk.
- Based on her needs and prior knowledge, the advantages and disadvantages of the various methods of family planning are briefly explained.
- Diagrammatic representations of the methods in posters are shown to her. She is allowed to feel the contraceptive models or items such as the IUCD.

- In case she has any clarifications regarding family planning methods, they are cleared.

HELP

- The client should now choose a method. In case she has any queries, they are clarified. If she has difficulty in choosing, help is provided.
- The client's choice is supported and further steps are taken for implementing her choice.

EVALUATE

- A thorough medical history and reproductive history of the client is taken.
- The client's fitness for safely using the method of her choice is assessed.

EXPLAIN

- If she has chosen the PPIUCD, key information regarding its use is discussed.
- They are told about the safety, effectiveness, cost, convenience, mechanism of action, time of insertion, course of protection, return of fertility, advantages, disadvantages, limitation, health benefits, possible risks and follow up requirements of the PPIUCD.

Advantages of PPIUCD discussed

- IUCD is placed soon after delivery and it is a simple procedure.
- Further action is not needed.
- Fertility returns immediately after removal.[20,21]
- The client is assured that breast feeding will not be affected by the IUCD.[42]The benefits of exclusive breast feeding are stressed.

- It can be used for a long period of ten years. If needed it can be removed earlier also.

Limitations of PPIUCD discussed

- Does not offer protection against STD.
- Expulsion risk is more in postpartum insertion of IUCD.

Warning signs after PPIUCD insertion explained

She is advised to return to the hospital immediately if she has the following warning signs.

- Vaginal discharge that is foul smelling and different from lochia.
- Pain in the lower abdomen accompanied by fever, chills especially in the first twenty days after IUCD insertion.
- Doubts that the IUCD may have been expelled.

CHECKING

- She is asked questions or asked to repeat information. This is for checking whether the key information has been understood by the client.

RETURN

- If the client is not able to choose a contraceptive method, she is asked to discuss it along with her family members and inform her choice to the counsellor during her follow up visit.

MEDICAL ELIGIBILITY CRITERIA (MEC) [22]

The WHO provides guidance for safely using the copper T. It has listed the Medical Eligibility Criteria based on scientific proof. For assessment of the client, this criteria is used. They have grouped the clients into four categories.

- Category 1

  The copper T can be safely used without any restriction.

- Category 2

  The advantages in using the copper T are greater compared to the risks (theoretical and proven) Hence the copper T can be used generally.

- Category 3

  The advantages in using the copper T are outweighed by the risks (theoretical and proven). Hence the copper T should not be used.

- Category 4

  The copper T should not be used. Usage of copper T may cause unacceptable health problems. It should be used only when other methods are unavailable and unacceptable.

CONDITIONS UNDER CATEGORY 1

- More than 20 years
- Women with parity greater or equal to one

Medical conditions

- Obesity
- Hyperlipidemia
- Cigarette smoking
- Diabetes
- Hypertension
- Risk factors for cardiovascular diseases
- Valvular heart diseases that are not complicated

- Current thromboembolic disease or H/O thromboembolic events in the past
- Depression
- Any type of headache
- Epilepsy
- Women who are taking anticonvulsants or antibiotics
- Thyroid disorders
- Diseases in the liver or the gallbladder
- Malaria
- Non pelvic TB

Surgical conditions

- Previous surgeries in the pelvis

Obstetric and gynaecological conditions

- Ovarian tumors that are benign
- Cervical intra epithelial neoplasia (CIN)
- Breast disease (Benign or malignant)
- Women with prior pelvic inflammatory disease with subsequent pregnancy
- Women with prior ectopic pregnancy
- Irregularities in menstrual bleeding but not heavy bleeding
- Prior caesarean section

CONDITIONS UNDER CATEGORY 2

- From menarche up to 20 years of age[45]
- Nulliparous women

Medical conditions

- Iron deficiency anaemia
- Thalassemia
- Valvular heart diseases that are complicated
- High risk of HIV
- HIV positive women on ART[46]
- Women with lupus taking immunosuppressive therapy

Obstetric and gynaecological conditions

- Women with h/o pelvic inflammatory disease without subsequent pregnancy
- Endometriosis
- Menstrual bleeding that is heavy and/ or prolonged

In case of complicated valvular heart disease, antibiotic prophylaxis is used prior to IUCD insertion

CONDITIONS UNDER CATEGORY 3

- Women with AIDS but with no access to proper care and not taking ART
- Lupus associated with severe thrombocytopenia
- Ovarian cancer
- Trophoblastic disease (benign)

- High risk of infection (Chlamydial or gonococcal) from partner who has current infection

CONDITIONS UNDER CATEGORY 4

- Current pelvic inflammatory disease
- Current gonococcal or chlamydial infection
- Acute purulent discharge
- Pelvic tuberculosis
- Trophoblastic disease (Malignant)
- Cervical cancer or endometrial cancer
- Vaginal bleeding due to an unexplained cause
- Suspected or unknown pregnancy

WHO (WORLD HEALTH ORGANIZATION) MEDICAL ELIGIBILITY CRITERIA (MEC) FOR IMMEDIATE PPIUCD INSERTION[12]

If an episotomy is given or if multiple lacerations of the vagina have occurred during delivery, then the insertion of the IUCD should be done prior to starting the repair. In case there is bleeding or hemodynamic instability, the priority should not be given to IUCD insertion. The cause of hemodynamic instability should be addressed and controlled. Once the patient is stabilized, insertion of IUCD can be done immediately or on the next day.

In the management of labour, alteration in any aspect to accommodate IUCD insertion should not be done. Life threatening conditions such as PPH and eclampsia should be treated on a priority as per the national guidelines.

Uterine massage, controlled traction of the cord and uterotonics do not make IUCD insertion more difficult nor do they increase the expulsion risk.

CONDITIONS UNDER CATEGORY 1

- Immediate post-placental insertion of IUCD
- Immediate postpartum (<48 hours) insertion of IUCD
- Insertion of IUCD during caesarean section
- Insertion > 6 weeks postpartum

CONDITIONS UNDER CATEGORY 2

- No conditions

CONDITIONS UNDER CATEGORY 3

- Insertion in the postpartum period from 48 hours to 6 weeks
- Rupture of membranes for a prolonged period (> 18 hours)
- Chorioamnionitis

CONDITIONS UNDER CATEGORY 4

- Puerperal sepsis
- Postpartum haemorrhage that has not resolved

ASSESSMENT OF THE CLIENT

Assessment of the women for immediate PPIUCD insertion is done in two phases. In the first phase, the woman's medical history and eligibility are assessed. It is done during the antenatal period. It must include assessment of conditions listed in the WHO Medical Eligibility Criteria.

If the women have come to the hospital only during delivery and if prior assessment has not been done, then the clinician should use clinical judgment for using the PPIUCD. A second assessment should be done just prior to the IUCD insertion by the provider who is inserting the IUCD. This is to ensure that any new clinical situation which can be a contraindication for IUCD insertion has not been created during the labour process.

The following conditions are ruled out during the second assessment.

- Time period between membrane rupture to delivery of baby is greater than 18 hours
- Puerperal sepsis
- Chorioamnionitis
- Postpartum endometritis
- Unresolved PPH
- Genital trauma that is extensive

If any of the above conditions makes IUCD insertion unsuitable, then the reason must be explained and she must be offered another family panning method. In case she refuses, reassessment can be done when she comes for the next visit after 6 weeks.

UTERINE CHANGES AFTER DELIVERY

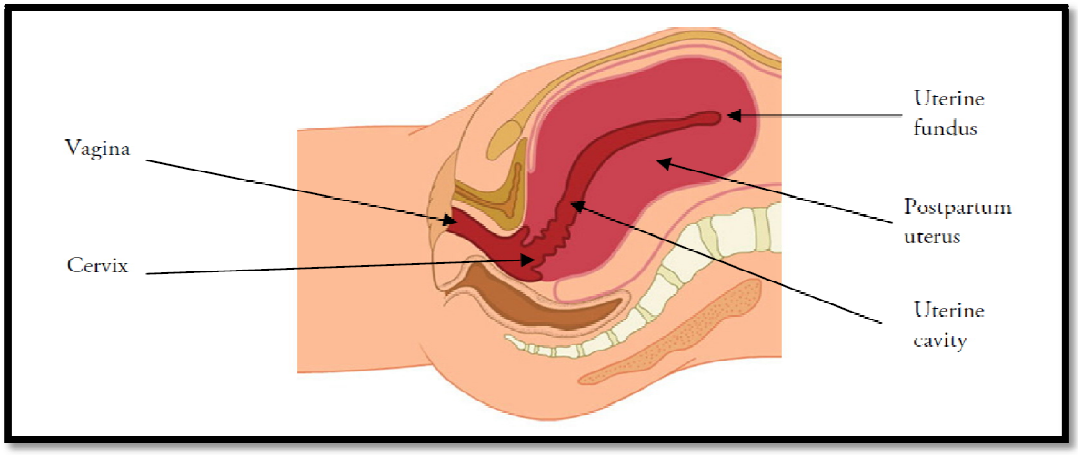


Fig 4. Anatomy of postpartum uterus

- Immediately after the third stage of labour, there is contraction of the uterus and the fundus of the uterus can easily be palpated below the umbilicus.
- The weight of the uterus is approximately 1 kg and its size is that of a five month old pregnancy.
- The anterior and posterior wall of the uterus is about 4-5 cm thick.
- The anterior and posterior wall of the uterus lies close together.
- The lower uterine segment is extremely thin and floppy due to stretching.
- Uterine body is tilted forward and it is markedly mobile. The thin and stretched lower segment contributes to its mobility.
- The extreme curvature noted on bimanual examination is due to the heavy and thick body as compared to the thin stretched lower segment.
- The uterine axis is at a right angle to the vaginal axis.
- There is no change in the consistency and the size of uterus for 48 hours.

- In 2 weeks, the uterus straightens and shrinks thus completely descending into the pelvis. The lower segment cannot be appreciated. The uterus cannot be palpated above the pelvic bone.
- In 5-6 weeks, the uterus involutes to its non pregnant size.

CERVICAL CHANGES AFTER DELIVERY

- After third stage of labour, the cervix is thin, flabby, collapsed and extremely soft.
- The outer margins are lacerated.
- The cervix readily admits two fingers for a few days.
- Within 1 week, there is reformation of the cervical canal as the cervical opening progressively narrows and the cervical walls thicken.
- When the involution is complete, the cervix is tightly closed and firm in consistency while the characteristics of a parous cervix is retained.

PROPER TECHNIQUES OF PPIUCD INSERTION

From delivery up to 48 hours, the uterine length is approximately 30 cm and the length of the typical IUCD inserter tube is not sufficient. Hence fundal placement with the inserter tube is difficult.

To ensure that the IUCD is placed at the fundus, insertion may be done using hand or long forceps. The uterine axis is at a right angle to the vaginal axis. The challenge is to negotiate the bend where the body of the uterus flops over lower segment. The posterior wall may be mistaken for the fundus and this common error may be minimized by careful manual palpation to confirm fundal placement. After delivery from 48 hours to 6 weeks, the uterus is softer and

vascular compared to the non pregnant uterus. There is increased risk of perforation and infection during this period and hence IUCD insertions are avoided in this period.

For interval insertion, the traditional IUCD inserter tube is sufficient.

POST PLACENTAL IUCD INSERTION USING THE PLACENTAL FORCEPS

- The woman's record is checked and examination is done to rule out conditions preventing IUCD insertion.
- Make sure that the consent has been obtained from the woman.
- Availability of supplies and equipment are checked.
- Active management of third stage of labour is done.
- Ensure that the woman is still willing for PPIUCD insertion.
- Hand hygiene is performed and sterile gloves are worn.
- Supplies and instruments for PPIUCD insertion are arranged on a draped area or sterile tray.
- Perineum and vagina are inspected for any lacerations. Repair is done after IUCD insertion if bleeding is not heavy.
- A Sim's speculum is gently inserted into the vagina and its posterior wall is depressed to visualize the cervix.
- Using a ring forceps, the cervix is gently cleaned with an antiseptic solution such as povidine iodine twice using 2 different cotton swabs. A gap of 2 minutes is given for the antiseptic to work.

- Using the same ring forceps, the anterior lip of cervix is grasped gently. The ring forceps is closed only till its first lock.
- Traction is gently applied on the anterior lip of cervix using the ring forceps.
- Kelly's forceps is used to grasp the IUCD within the sterile package. No touch technique is followed.
- The IUCD is grasped just at the edge of the placental forceps. Hence when the instrument is opened the IUCD gets easily released. Care should be taken so that the walls of the vagina are not touched during insertion.

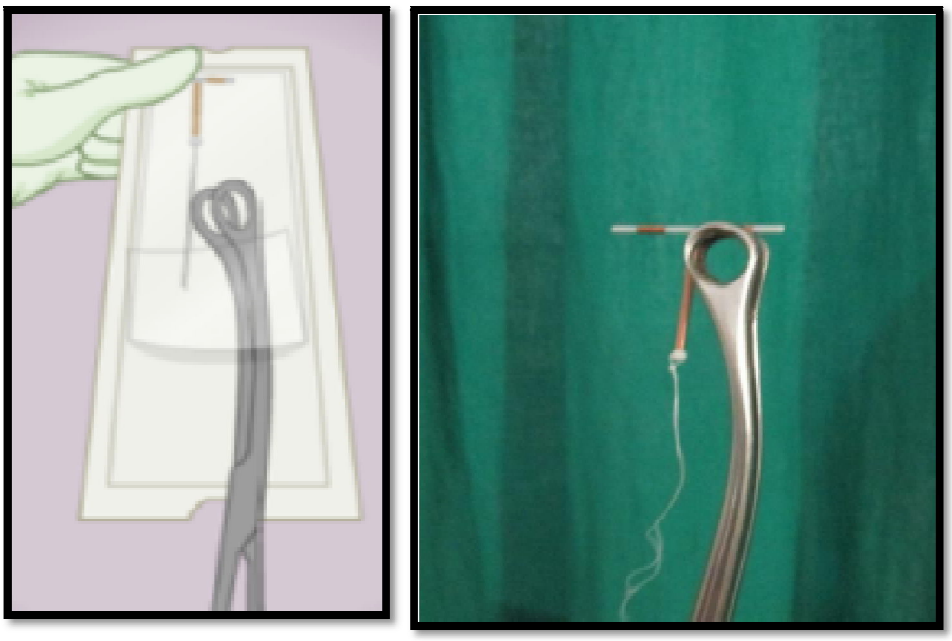


Fig 5 a &b. Insertion of IUCD using Kelly's placental forceps

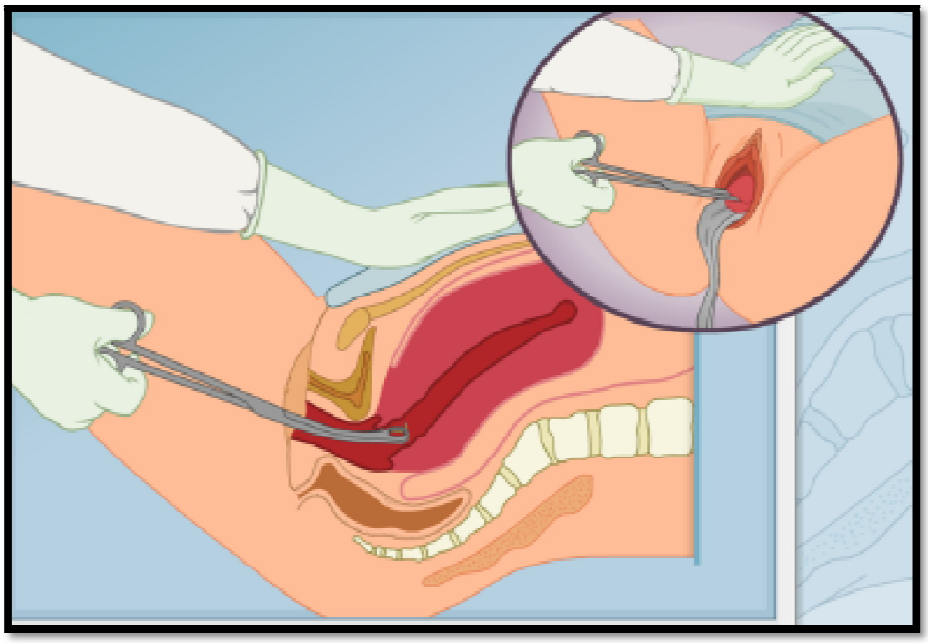


Fig.6 Post placental IUCD insertion

- When the placental forceps holding the IUCD is inside the lower uterine cavity, the ring forceps holding the anterior lip of cervix is lowered.
- There is an angulation between the uterus and vagina. Hence the left hand is used to push the uterus superiorly and straighten the angle. If this is not done, then the smooth advancement of the instrument will not be possible.
- The ring forceps is not needed any more and hence removed.
- Now the placental forceps can be moved up to the fundus of the uterus by following the uterine curvature. Excessive force should not be used.
- The instrument is always kept closed to avoid accidental dropping of the IUCD midway.
- When the end of the placental forceps has reached the fundus, a resistance is felt. A thrust can also be felt per abdomen using the left hand. The IUCD

is now released by opening the placental forceps. Care should be taken so that the IUCD does not get dislodged.

- Placental forceps is kept slightly open during removal so that the strings of the IUCD are not caught and pulled. The Kelly's forceps is swept to the sidewall so that it is not near the IUCD during removal. It is removed slowly and carefully. The uterus is stabilized by pressing the base of the hand against the lower part of the body till the placental forceps is removed.
- If the IUCD is protruding from the cervix or if the strings are too long, risk of spontaneous expulsion is high. Hence the IUCD is removed and reinserted using the same forceps.
- Examination of the cervix is done to rule out any bleeding.
- All instruments are decontaminated by placing it in 0.5% chlorine solution for 10 minutes.
- The woman is allowed to rest on the same table for a few minutes.
- Both the gloved hands are also immersed in 0.5% chlorine solution and then removed by turning the gloves inside out.
- Hand hygiene is performed.
- All the infection prevention and waste management steps are followed as per protocol.
- The woman is assured that the procedure went smoothly and that she now has a reliable contraceptive method.

- The information regarding IUCD insertion is recorded in the PPIUCD register which is kept in the facility. It is also recorded in the woman's chart.

IMMEDIATE POSTPARTUM IUCD INSERTION

There are few differences between the post placental and the immediate postpartum IUCD insertion.

- Ensure if the woman is eligible for IUCD insertion.
- Her bladder is emptied and external genitalia washed.
- Abdominal examination is done to check the uterine level and tone.
- Hand hygiene is performed and sterile gloves are worn.
- IUCD insertion is done using placental or ring forceps.

INTRACAESAREAN IUCD INSERTION

Though the IUCD insertion during caesarean delivery is straight forward, some factors need to be considered.

- The uterine cavity is inspected for any malformations.
- The uterus is stabilized by grasping the fundus.
- IUCD insertion may be done manually or ring forceps may be used.
- The IUCD is held between the middle and the index finger of the hand and it is passed through the incision. The IUCD is placed in the fundus and the hand is slowly withdrawn taking care not to move the IUCD.
- The IUCD strings are guided towards the internal os but avoiding displacement from the fundal position.

- The strings should not be pushed through the cervix, as it increases the risk of contamination by vaginal flora. It can also cause displacement of the IUCD.
- Care is taken during closure of the incision, so that the strings do not get included in the suture.

POST INSERTION CARE

- The client is asked to report any increased vaginal bleeding or uterine cramps.
- If there is haemorrhage due to uterine atony, it should be managed as per protocol. The risk of uterine atony is not increased by the PPIUCD.
- If there is persistent severe uterine cramping, a speculum and bimanual examination should be done to rule out complete or partial expulsion of the IUCD.
- If she has fever, a thorough clinical examination should be done and in case of endometritis, antibiotic regimen is given as per protocol.
- She is given a card which contains the following information.

  1) Type of PPIUCD inserted

  2) Date of insertion

  3) Year and month when PPIUCD is to be replaced or removed

  4) Date of follow up visit

  5) In case she has queries or problems related to IUCD, where she should call or go.

WARNING SIGNS

These are highlighted to the woman and she is asked to come to the hospital if she has any of the following.

- Heavy and/ or prolonged vaginal bleeding
- Severe pain in the lower abdomen
- Fever
- Vaginal discharge that is unusual
- Has seen the PPIUCD being expelled from vagina or has felt the PPIUCD in vagina
- Doubts that she may be pregnant
- Any other queries or problems related to PPIUCD

POST INSERTION INTRUCTIONS TO THE WOMAN

- She may have bleeding or cramping for a few days which is normal in the postpartum period. She can take pain relievers if needed.
- For three months postpartum, the risk of spontaneous expulsion is high. She should check for the expulsion of IUCD. In case of expulsion she must come to the hospital for reinsertion or change to another contraceptive method.
- Some women can feel the IUCD strings at the 6^{th} postpartum week. There is no need to check for the IUCD strings. In case of any concerns about the strings, she may visit the hospital.
- She should not forget that the IUCD does not offer protection against STDs. She can have intercourse if she feels ready.

- She can come for removal of the IUCD if she desires pregnancy. Her fertility will return almost immediately.
- The importance of breast feeding is stressed. She is reminded that the IUCD does not interfere with breast feeding.

COMPLICATIONS AND THEIR MANAGEMENT

To prevent the complication related to PPIUCD, the clients are screened carefully and steps for infection prevention are followed strictly.

REDUCTION OF SPONTANEOUS EXPULSION

Right technique

- Uterus should be elevated to straighten the angulation between the uterus and vagina
- The IUCD should be placed in the fundus.

Right instrument

- Long instrument capable of reaching the fundus should be used.

Right time[44]

- Low expulsion rates are seen in post placental insertions and intracaesarean insertions.

PROBLEMS ENCOUNTERED DURING INSERTION

1) **PAIN OR DISCOMFORT**

   This is common during IUCD insertion regardless of the time of insertion or the technique used. Reassure the patient. The procedure is done gently and quickly. Communicate with the patient throughout the procedure.

2) DISPLACEMENT OF IUCD

In case of displacement, the IUCD will be seen in the upper vagina or cervix after insertion. The woman experiences pain or discomfort. The length of the string seen does not correlate with fundal placement.

Using a sterile or HLD forceps, the IUCD is removed and the same can be reinserted with aseptic precautions if it is not contaminated. If it is contaminated, it is discarded and a new IUCD can be used.

3) CERVICAL LACERATION

It causes heavy vaginal bleeding. Repair is done based on size and severity of bleeding.

4) UTERINE PERFORATION

Perforation of the uterus has not been reported in any of the PPIUCD studies. Uterine perforation causes pain, sudden loss in resistance during insertion to the instrument and the depth of the uterus is more than what is normally expected. However if perforation occurs during insertion, the IUCD is gently removed, intravenous drip is started and the patient is allowed to rest. If there are any peritoneal signs or severe pain in abdomen or deterioration of vital signs, immediate surgical intervention may be required. Prophylactic antibiotics are given.

PROBLEMS ENCOUNTERED AFTER INSERTION

1) MENSTRUAL PATTERN CHANGES

The duration and amount of bleeding exceeds what is normally expected. There may be intermenstrual bleeding.

It's severity and its association with other symptoms (e.g. fever, pain) and the woman's ability to tolerate it is determined.

In case of mild symptoms, reassure the patient. If symptoms are severe with laboratory or clinical signs of severe anaemia, iron therapy are offered and removal of IUCD with patient's consent is considered.

A short course of NSAID's may be offered during the bleeding for three to five days.[47]

Removal is considered if bleeding is unacceptable to the patient and she is counselled for alternative method of contraception. Other gynaecological conditions and pregnancy are ruled out

2) PAIN OR CRAMPING

Normally there are cramps in the postpartum period associated with uterine involution (after pains). Its severity and its association with other symptoms (e.g., bleeding, fever) and the woman's ability to tolerate it is determined.

If cramps are mild and intermittent, associated with uterine involution, the patient is reassured. Pregnancy and infection are ruled out. A short course of NSAID's is recommended if the pain is bothersome to the patient.

If cramping/ pain is severe, removal of IUCD is considered.

3) INFECTION

The risk of infection of upper genital tract is high during the first 20 days of IUCD insertion and it is <1%.Beyond that period the risk is similar to that of non users.[70]

This is mostly due to pre existing infection or due to lack of aseptic precautions during IUCD insertion rather than IUCD *per se*.

The signs and symptoms are pain in the lower abdomen, fever, nausea, vomiting, pain during intercourse, new onset of pain during menses and abnormal discharge from the vagina.

An assessment of vital signs, abdominal examination, laboratory studies (CBC, culture) and pregnancy test is performed. This is to rule out conditions like appendicitis, pregnancy/ ectopic pregnancy, urinary tract infection, partial expulsion of IUCD or perforation of the uterus.

If PID and endometritis is suspected, the treatment is started immediately as per national guidelines using an appropriate antibiotic. If the symptoms do not resolve in 72 hrs, the IUCD is removed. If the woman prefers not to keep the IUCD, it is removed after giving antibiotic for two to three days.

If STDs are suspected, the woman is counselled to use condom as this would protect against future STD. Simultaneous treatment of the partner is recommended.

4) PROBLEMS WITH THE IUCD STRING

- Partner is able to feel the strings. Strings are either missing or too long or too short.
- If long strings are bothersome to the partner, it can be cut. If short strings are bothersome, another IUCD can be inserted. They are assured that the strings are not harmful as they are flexible. If the strings are missing, the cervix is probed to look for it and if found, the patient is reassured. If the string is not found on probing the cervix, the woman is asked if the IUCD has fallen out. If it has expelled, it is replaced or another contraceptive method is offered. If she is not sure whether it has fallen out or not, an ultrasound is taken to locate the IUCD. If the IUCD is visualized in the USG, the patient is reassured. If the IUCD is not visualized, the IUCD is replaced or another contraceptive method is offered. Follow up is done at 12 weeks and if the strings are not seen, the same protocol is repeated again.

5) PARTIAL OR COMPLETE EXPULSION OF IUCD

This may occur silently or associated with symptoms such as irregular bleeding, cramping, missing or long strings.

In complete expulsion, the expelled IUCD is seen. X-ray or ultrasound is done to confirm it. After doing a pelvic examination to rule out infection and pregnancy, another IUCD is inserted if the woman desires it or another family planning method is offered.

In partial expulsion, the IUCD is felt or seen in the vaginal canal. X-ray or ultrasound is done to confirm it. The IUCD is removed. After doing a pelvic examination to rule out infection and pregnancy, another IUCD is inserted if the woman desires it or another family planning method is offered.

If the IUCD is embedded in the cervical canal, the woman is referred to a specialist for IUCD removal.

Post placental insertions have lower expulsion rates compared to immediate postpartum insertion but with higher expulsion rates compared to interval IUD insertion. Intracaesarean insertions have lower expulsions compared to post-placental insertions.[48]

6) PREGNANCY WITH IUCD IN PLACE

About one third of the pregnancies are due to partial or complete IUCD expulsion that went undetected. The patients usually present with missed periods, signs and symptoms of pregnancy, strings may be shorter or longer than what is expected or they may be missing.

After ruling out ectopic pregnancy, the woman is counselled regarding the risks and benefits of immediate IUCD removal. Immediate removal increases the abortion risk slightly (20% risk) whereas leaving it in place may cause abortion (40-50% risk) in the second trimester[49], preterm delivery or infection. If the woman desires removal of IUCD, the provider can immediately remove it if the strings are visible and if the pregnancy is in the first trimester. In case of missing strings, ultrasound is done to see

whether the IUCD has expelled or if it is still inside the uterus. No attempt should be made to remove the IUCD if it is still inside the uterus. If the woman does not prefer the removal of IUCD, antenatal care is provided and close monitoring is done. She should return to the hospital immediately if she has fever, bleeding or pain in the lower abdomen which may be due to infection or spontaneous abortion. The IUCD is removed after delivery.

If the woman is in the second or third trimester, she may be referred to a specialist for antenatal care. There is no increase in teratogenesis in infants born with IUCD in situ.[50]

If she has unilateral stabbing pain, abnormal vaginal bleed or dizziness, ectopic pregnancy should be ruled out.

FOLLOW UP

Follow up is essential for client satisfaction and for continuation of the method. The woman must return to the hospital after six weeks for IUCD follow up, post natal care and new born check up. She may also come at any time if she has any of the warning signs or any other concern.

If she lives far away from the hospital where the IUCD insertion was done, then the follow up counselling may be provided by ANM/ ASHAs. If many of the clients don't return for follow up, then reaching out to them through community health workers is considered.

Supplies needed for follow up

- Follow up register
- Long forceps
- Scissors
- Sims/ Cusco speculum
- Other supplies needed for speculum examination
- Medicines for managing common complaints
- Ibuprofen tablets
- Iron tablets
- IEC material. This includes a flip book which can be used by the providers, PPIUCD posters and PPIUCD leaflets.

In the follow up visits, the following are done.

- The client's satisfaction with the method is asked.
- Usual postpartum check up and new born care.
- An assessment for anaemia, if she has heavy or prolonged menses.
- A speculum examination to see if the IUCD strings are in place. If the strings are uncomfortable to the woman, they are cut. Also conditions like pregnancy, STD, PID and IUCD expulsion are ruled out.
- If the PPIUCD has been expelled, another IUCD is inserted or another contraceptive method is offered.
- Condom usage is encouraged for protection against STDs.
- The key messages and warning signs are reinforced.

- She may come for additional follow up visit if she has any problem. Otherwise no more follow up is needed. She has to come only if she decides to remove the IUCD or at the end of 10 years.
- If she has problems such as persistent cramps due to unknown reason, uterine wall perforation or puerperal sepsis, the IUCD may be removed. It is similar to the removal of interval IUCD.

STANDARD UNIVERSAL PRECAUTIONS FOR INFECTION PREVENTION

1) Hand washing

Hands are washed with water and soap or alcohol based rub before and after PPIUCD insertion and dried using a clean towel. Towels are not to be shared. Hands can also be air dried.

2) Self protection

Before touching anything infective, protective gloves should be worn. If splashes/ spills of blood/ body fluids are possible during the procedure then protective aprons, face masks and goggles should be used.

3) Aseptic and safe work practice

Before insertion, the cervix and vagina are cleaned two or more times with an antiseptic solution.

No touch technique is used.

Only IUCD's that are in sterile packages and undamaged and within the expiry date should be used.

Sterile/ HLD instruments and gloves should be used during the procedure.

During insertion, to avoid contamination any unsterile surface, perineum and vaginal wall should not be touched. Ideally never pass the IUCD through the os more than one time.

If the IUCD strings are seen after the forceps is removed during insertion, it means that the IUCD is displaced or placed at a lower level than the uterine fundus. In such cases, the IUCD is removed and if it is not contaminated, tried one more time for proper fundal placement.

4) Environmental cleanliness

All contaminated surfaces such as instrument stand and procedure table are wiped with chlorine solution (0.5%) wearing gloves.

If organic material is present even after decontamination, they are washed with water and soap.

5) Processing instruments

Step 1: Decontamination

Step 2: cleaning and rinsing

Step 3: High level disinfection HLD/ sterilization

Step 4: Storage

Decontamination

This is done to prevent transmission of HIV, Hepatitis B and C. This is done before handling or cleaning of instruments by the staff. 15 grams of 30% bleaching powder is mixed with 1 litre of water and stirred well to prepare a 0.5% chlorine solution. Every 24 hours, the solution should be changed or when it becomes red or milky white in colour. After using the

instruments they are kept fully immersed in 0.5% chlorine solution for 10 minutes.

The instruments are rinsed with water and dried with a towel after decontamination to prevent corrosion. The gloved hands are immersed briefly in 0.5% chlorine solution and the removed carefully by turning them inside out and left in the solution for about 10 minutes.

Cleaning and Rinsing

The contaminants are thoroughly scrubbed with soap and water using a soft brush. Then they are rinsed well to remove all the soap which interferes with disinfection.

The instruments are dried with a towel or air dried after rinsing.

High Level Disinfection (HLD)

HLD BY BOILING

Instruments are fully immersed in water in a covered container and boiled for 20 minutes. Items are then allowed to air dry and can be stored in a covered, dry, airtight HLD container for 7 days. It can be used for up to 24 hours when stored in an ordinary HLD container.

HLD BY CHEMICAL METHOD

Items are fully immersed for 20 minutes in a high level disinfectant (2% glutaraldehyde or 0.1% chlorine solution). Items are then removed, rinsed three times using boiled water and air dried. They can be stored in a covered, dry, airtight HLD container for 7 days.

Sterilization

STERILIZATION BY STEAM

After decontamination and cleaning the instruments, they are autoclaved at 121°C for 20 minutes if the instruments are unwrapped and for 30 minutes if they are wrapped.

STERILIZATION BY CHEMICAL METHODS

Here 2% glutaraldehyde solution is used and the items are kept immersed in it for 8 to 10 hours. They are then rinsed with sterile water and air dried. Boiled water should not be used.

Storage

They should be used immediately or they can be stored in an air tight sterilized/ HLD container for 1 week. They can be used for up to 24 hours after opening the lid.

Waste Disposal

The wastes are segregated in a proper container and disposed safely according to protocol.

SPECIFIC STEPS TO PREVENT INFECTION

BEFORE INSERTION

All the supplies and sterilized/ HLD instruments should be kept ready.

IUCD package should not be damaged and expiry date is checked.

The perineal area should be washed with water before immediate postpartum IUCD insertion. Antiseptic solution is used to clean the cervix twice. After washing the hands, the provider wears gloves.

DURING INSERTION

IUCD is stabilized with HLD/ sterile gloves while it is still in the packet using placental forceps. No touch technique is used throughout to reduce infection.

AFTER INSERTION

Decontamination is done before the gloves are removed. As per protocol waste management is done.

STUDIES ON PPIUCD

Kanhere AV *et al.* (2015) conducted a study in which 200 eligible women were counselled. 72 women underwent postpartum IUCD insertion. They were followed up at 6 weeks or if they had any complaints. Acceptance rate was 35% in 21-29 years age group, 48% in primipara and 60 % of the women were educated. The rate of follow up was 72% (52 cases), the rate of expulsion was 22%. At 6 months follow up visit , one patient had intrauterine pregnancy with IUCD *in situ* whereas there were no major complications like PID, perforation. It was concluded that the PPIUCD was a highly effective method of contraception with minimal side effects.[54]

Mohammed AI *et al.*(2015) conducted a study among 440 women who underwent LSCS. IUCD was inserted after puerperal period in 252 women whereas it was inserted post placentally during LSCS in 188 women. Follow up was done at first, third and sixth month after insertion. No significant difference with respect to baseline characteristics between the puerperal and post placental group (P> 0.05) was noted. There was statistically significant difference between the two groups with respect to backache, abdominal pain and PID with increased

incidence in the post puerperal group. This study concluded that the post placental insertion of IUD during caesarean section is very effective without significant increase in adverse effects.[55]

Singal S *et al*. (2014) conducted a study among 300 primiparous women who delivered by LSCS, who underwent IUCD insertion. They were followed up at 1, 3, 6 and 12 months. It was found that the mean age was 23.12±2.42 years. Febrile morbidity was the most common complication (2%), expulsion rate was 5.33% (16 expulsions), removal rate was 7% (21 removals), failure rate was 0.67% (2 pregnancies) and the continuation rate was 91%. It was concluded that intracaesarean Cu-T insertion is a very effective contraceptive method with high continuation and low expulsion rates.[56]

Jain N *et al*.(2015) conducted a study to compare the outcome of immediate postpartum IUCD with that of interval insertion. Among the 168 patients included in the study, 94 were inserted immediate postpartum IUCD and 74 were inserted interval IUCD. Follow up was done at 6 weeks, 3 months and at 6 months. In the immediate postpartum group 10.63%, 6.02% and 5.19% were lost to follow up (Group I) whereas 16.22%, 13.11% and 11.54% were lost to follow up in the delayed insertion group (Group II). The expulsion rate was 1.2% in Group I whereas in Group II was 1.6%. The continuation rate in Group I was 73.4% and in Group II it was 59.5%. Side effects were less in Group I compared to Group II. Thus it was concluded that IUCD insertion in the immediate postpartum period is safe, effective and better contraceptive method compared to delayed insertion.[57]

Kittur S *et al*. (2012) conducted a study to assess the safety and efficacy of post placental IUCD insertion. Of the 210 women included in the study, insertion of IUCD was easy in 99.52% following normal delivery and in 100% following assisted vaginal delivery. Follow up was done at 6 weeks following insertion. In 94.78%, the Cu T was in situ, in 24.76%, USG was used to confirm the location and in 6.19%, the tip of Cu T was in the cervix and it was pushed back into the uterus. The expulsion rate was 5.23% with no major complications. Thus it was concluded that the expulsion rate can be minimized if IUCD was placed at the fundus and inserted by trained personnel.[58]

Katheit G *et al.*(2013) conducted a study in which 397 women underwent post placental IUCD insertion after counselling and were followed up at 6 weeks. It was concluded that awareness regarding post placental IUCD was 5.79% which was low compared to 73.55% awareness in interval IUCD. Acceptance rates were higher among women aged 21-25 years (50.88%), 35.76% in para 2 and 65% in educated women. The rate of expulsion was 10.5% with no major complications such as perforation.[59]

Raffat Sultana *et al*. (2015) conducted a study in which 150 women underwent PPIUCD insertion (64% post placental and 36% intracaesarean). Follow up was done at 1 week, 6 weeks and at 6 months postpartum. It was concluded that the expulsion rate was 8% at 6 months postpartum and intracaesarean insertions had lower expulsion (1.8% versus 6.6%). There were no cases of infection, perforation and unplanned pregnancy. The removal rate was

9.3% and the continuation rates at 1 week, 6 weeks and 6 months postpartum were 94%, 92% and 82.6% respectively.[60]

Anjum Afshan *et al.* (2014) conducted a study in which 1238 women underwent PPIUCD insertion of which 56% were post placental and 44% were intracaesarean insertions. The follow up rate was 51% and 14% at 6 weeks and 6 months respectively. The expulsion rate was 5% and 6% at 6 weeks and 6 months respectively and the continuation rates at 6 weeks and 6 months were 90% and 84% respectively. There were no cases of perforation, unplanned pregnancy or any major complications.[61]

Rajni Gautam *et al.* (2014) conducted a study in which out of 1941 eligible women, 423 (21.77%) underwent PPIUCD insertion. The insertion was post placental in 100 (8.92%), postpartum in 27 (2.4%) and intracaesarean in 296(36.09%) women. Follow up was done at 6 weeks. Acceptance was high in women aged less than 19 years, primi and in those with last child birth 0-2 years. Complications included bleeding problems in 19%, missed thread in 12.7%, infection in 4.3%, removal in 4% and expulsion in 3.1%. No major complications were noted.[62]

Manju Shukla *et al.* (2012) conducted a study in which 1317 women underwent post placental and intracaesarean insertion of Cu T 200B and follow up was done at 6 weeks and 6 months postpartum. The follow up rate at 6 weeks and 6 months were 1037 (78.7%) and 118 (11.37%) respectively. 283 (27.23%) women had menorrhagia, of which 65 wanted removal as menorrhagia was not

responding to medical treatment. The expulsion rate was 10.68% at 6 months. No case of perforation, infection or other major complications were noted.[63]

Satyavathi Maluchuru *et al*. (2014) conducted a study in which 1000 women were counselled for PPIUCD (post placental and intracaesarean) insertion, of which 246 accepted. Follow up was done 4- 6 weeks later. Complications included bleeding in 23 women (11.5%), string problems in 32 women (16%) and expulsion in 7 women (3.5%), removal in 11 women. There were no cases of perforation, infection or unplanned pregnancy. The continuation rate was 91%.[64]

Rekha G. Daver *et al.*(2014) conducted a study in which 134 women underwent PPIUCD insertion of Cu T 380A within 48 hours following delivery and follow up was done at 6 weeks, 3 months and 6 months postpartum. 52% of women had 2 living children, 73% of women had never used any contraceptive method before and IUCD were used by only 11% of women. At 6 months, menstrual problems were present in 8% of women, string problems in 5% and 2% had pain abdomen. Expulsion occurred in 13(12%) out of the 107 women followed up and all the expulsions occurred during the first 3 months.[65]

Gujju RLB *et al*. (2015) conducted a study in which out of the 4209 women counselled, 780 women (18.5%) underwent post placental and intracaesarean insertion of Cu T 380A and they were followed up at 6 weeks. Expulsion rates and continuation rates were 0.2% and 97.56% respectively. Complications were minimal such as minor menstrual abnormalities in 5.5%, abdominal pain in 8.9% and infection in 5.4%. No case of perforation was noted.[66]

Farhat Arshad *et al.* (2014) conducted a study in which 240 underwent intracaesarean insertion of IUCD and were followed up at 6 weeks, 3 months and 6 months. 64 women (26.66%), 74 women (30.83%) and 80 women (33.33%) were lost to follow up at first, second and third visit respectively. Expulsion rate was 2.8% and removal rate was 3.4%. Minor problems were noted in 67 women (38.06%). No case of PID or perforation was noted.[67]

MATERIALS AND METHODS

MATERIALS AND METHODS

This is a prospective study done at Department of Obstetrics and Gynaecology, Coimbatore Medical College Hospital from August 2014 – July 2015. Ethical approval for the study was obtained from hospital ethics committee prior to the commencement of the study. 200 women delivering in the hospital fulfilling the inclusion criteria were included in this study after obtaining informed consent.

INCLUSION CRITERIA

1. All women delivering vaginally or by caesarean section, counselled for PPIUCD antenatally, in early labour or in the immediate postpartum period.
2. Provided informed written consent to participate in the study.
3. Parturients who are residing locally so that they can conveniently come for follow up.

EXCLUSION CRITERIA

1. Those who did not provide informed consent
2. Postpartum haemorrhage
3. PROM > 18 hours
4. Chorioamnionitis
5. Active STD / other lower genital tract infection
6. Fever ≥ 38° C during labour and delivery
7. Puerperal Sepsis
8. Uterine anomaly
9. HIV positive patients taking ART.

A questionnaire was used to collect data from the patients, which included socio demographic data, previous contraceptive history, awareness about PPIUCD, intended duration of IUCD use. Those women fulfilling the inclusion criteria underwent postpartum insertion of IUCD.

Proper fundal placement of the IUCD was confirmed by abdominal ultrasonography when the distance between the endometrium of the uterus at fundus and the upper part of the IUCD was less than 10 mm.

All women were advised to come for follow up at 6 weeks, 3 months and 6 months following IUCD insertion. A follow up card was given to all the women containing information regarding type of PPIUCD inserted, insertion date, date of expiry, date of follow up visits, principal investigator's telephone number. During follow up visits, data were collected regarding complaints, willingness to continue Cu T, request for removal, willingness for reinsertion if expelled. Clinical examination was done which included temperature, per abdomen examination for involution of uterus and supra-pubic tenderness, speculum examination to see if strings were visible and to look for any abnormal discharge. Then bimanual examination was done to look for cervical motion tenderness. Women who expelled the IUCD or those with missing strings, transvaginal USG was done to confirm expulsion. IUCD endometrial distance was also measured during the follow up visits. IUCD endometrial distance was measured from the top of the vertical arm of the IUCD and the junction between the endometrium and uterine cavity in the longitudinal plane.

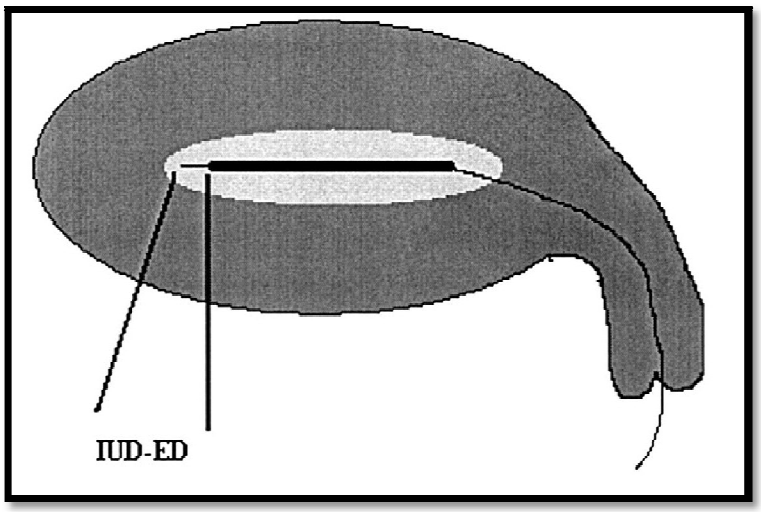


Fig 7. Measurement of IUCD endometrial distance

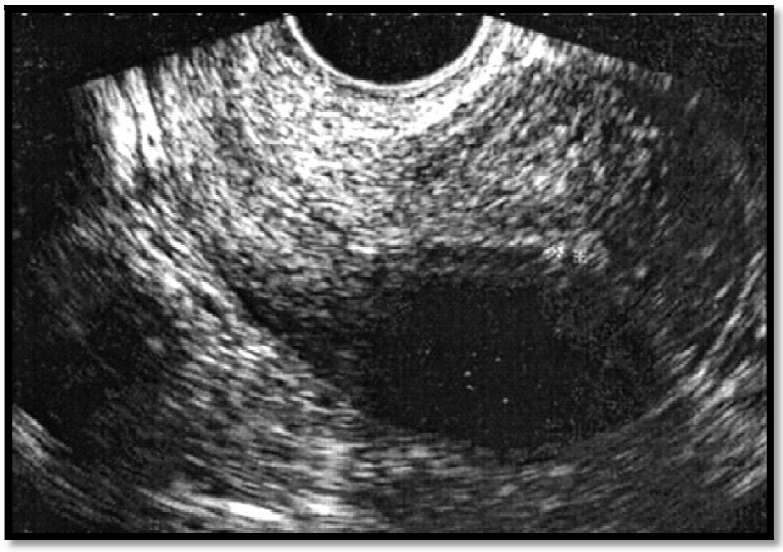


Fig 8 Ultrasound picture of IUCD endometrial distance measurement

The collected data were analysed with SPSS (Statistical Package for the Social Sciences) 16.0 version and frequencies and percentages were calculated. To find the significance in categorical data, Chi-Square test was used. In the above statistical tools the probability value <0.05 is considered as significant.

RESULTS

RESULTS

This is a prospective longitudinal study in which 200 women fulfilling the inclusion criteria underwent postpartum insertion of Cu T 380A over a period of one year after obtaining informed consent. The safety, efficacy and continuation rates were analysed.

Table 1. Age distribution

Age in years	Number	Per cent
Up to 20	22	11.0
21-25	109	54.5
26-30	54	27.0
31-35	14	7.0
Above 35	1	0.5

Majority of the women were aged between 21-25 years (54.5%), 27% were between 26-30 years, 11% were ≤ 20 years, 7% were between 31-35 years and 0.5% were above 35 years.

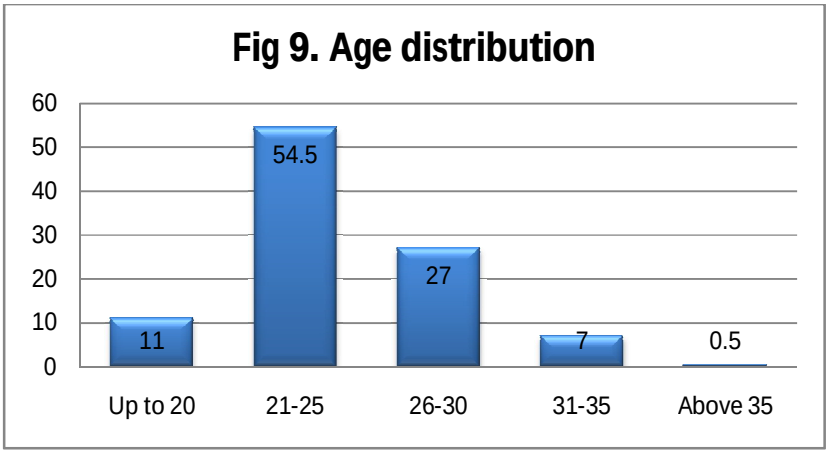


Table 2. Education

Education	Number	Per cent
Illiterate	7	3.5
Primary school	53	26.5
Middle school	59	29.5
Secondary school	41	20.5
Higher secondary	30	15.0
Degree/Diploma	10	5.0

Most of the women had studied up to middle school (29.5%), 26.5% studied up to primary school, 20.5% studied up to secondary school, 15% studied up to higher secondary school, 5% had degree/ diploma and 3.5% were illiterate.

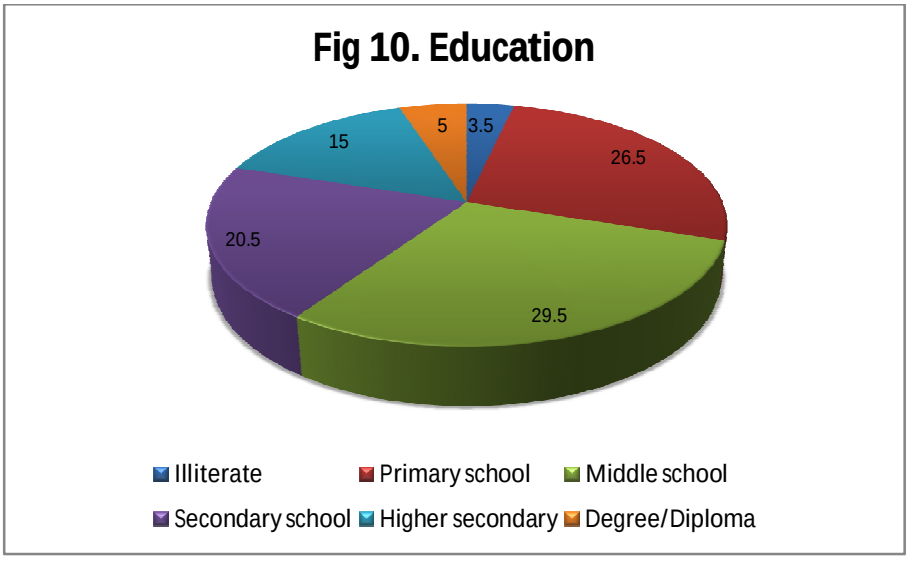


Table 3. Occupation

Occupation	Number	Per cent
Housewife	190	95
Employed	10	5

95% of the women were housewives where as 5% were employed.

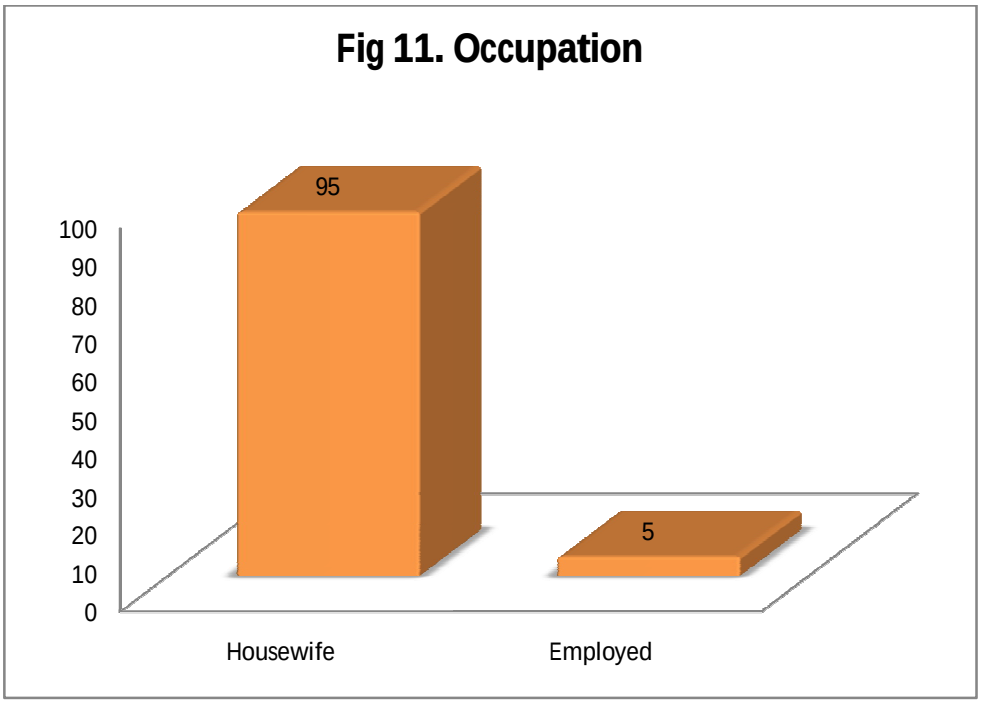


Table 4. Socioeconomic status

Socioeconomic status	Number	Per cent
Lower	108	54.0
Upper lower	77	38.5
Lower middle	13	6.5
Upper middle	2	1.0
Upper	0	0.0

Most of the women belonged to lower socioeconomic status (54%), 38.5% belonged to upper lower socioeconomic status, 6.5% belonged to lower middle socioeconomic status and 1.0% belonged to upper middle socioeconomic status as per modified Kuppusamy's classification.

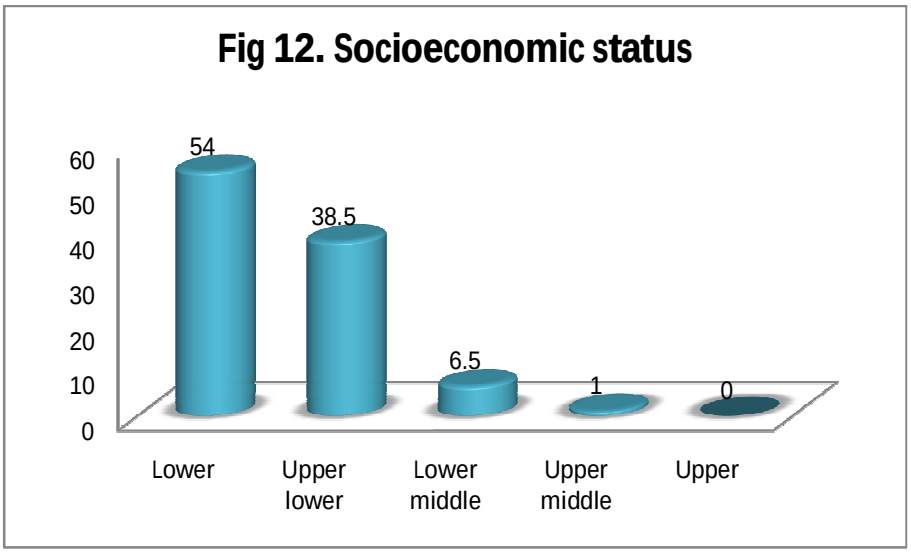


Table 5. Parity

Parity	Number	Per cent
P1	154	77.0
P2	34	17.0
P3	11	5.5
P4	1	0.5

Majority of the women were Para 1 (77%), 17.0 % were Para 2, 5.5 % were Para 3 and 0.5% were Para 4.

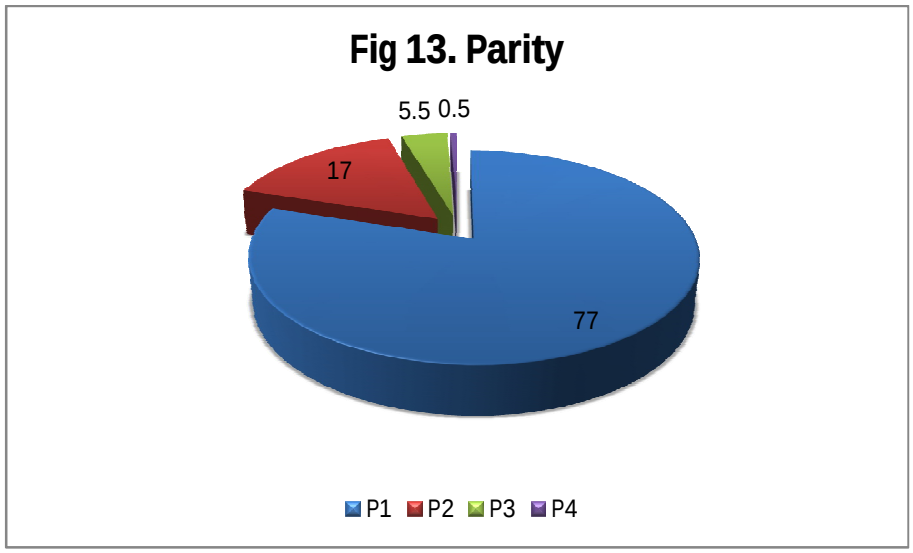


Table 6. Number of living children

Number of living children	Number	Per cent
1	157	78.5
2	35	17.5
3	7	3.5
4	1	0.5

Most of the women had one living child (78.5%), 17.5% had 2 living children, 3.5% had 3 living children and 0.5% had 4 living children.

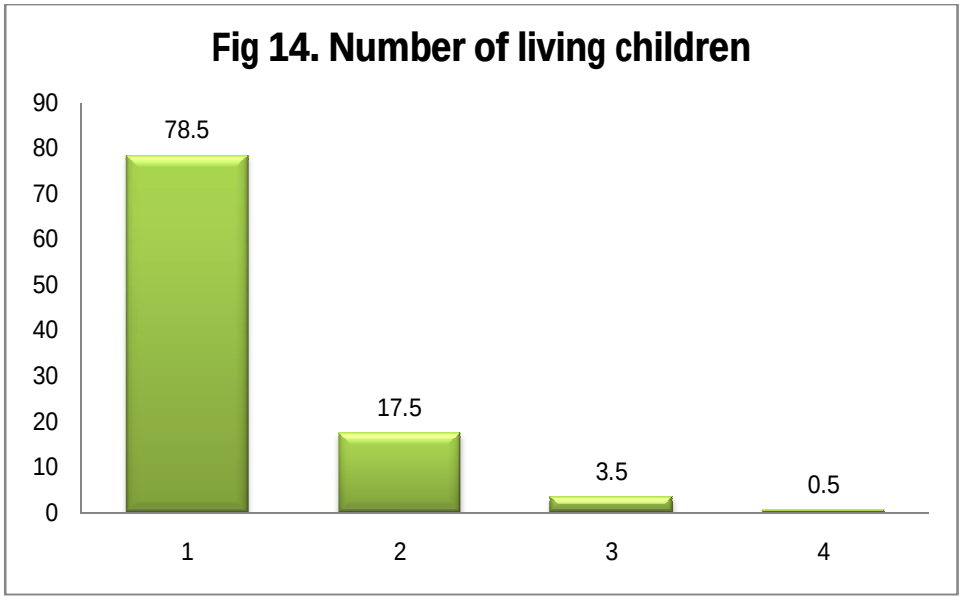


Table 7. Timing of counselling

Timing of counselling	Number	Per cent
Antenatal period	73	36.5
Early labour	47	23.5
Before LSCS	39	19.5
Postpartum period	41	20.5

36.5% of the women were counselled in the antenatal period, 23.5% were counselled in early labour, 19.5% were counselled before LSCS and 20.5% were counselled in the postpartum period.

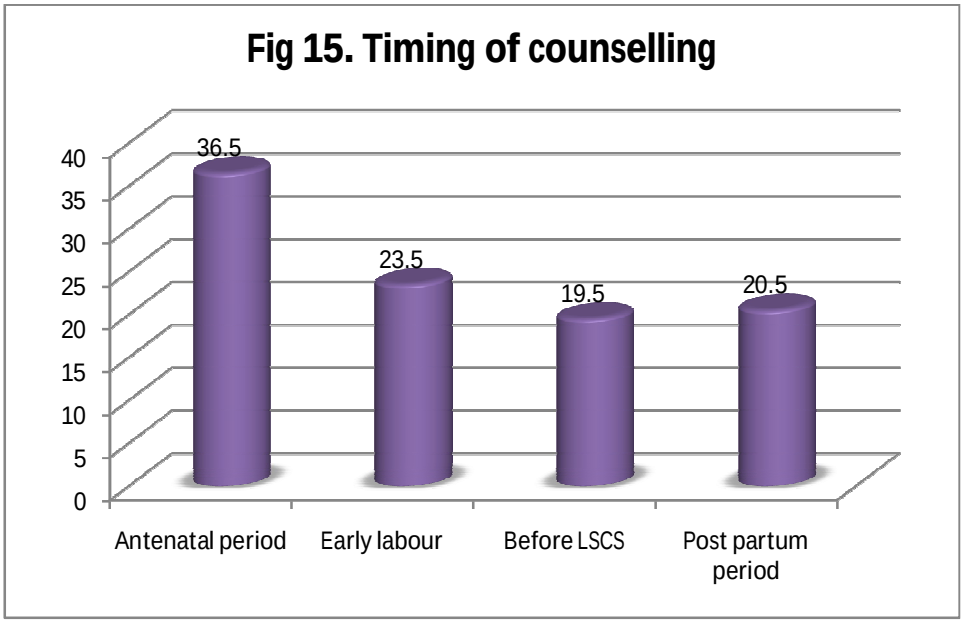


Table 8. Awareness of IUCD

AWARENESS	YES n(%)	NO n(%)
PPIUCD	83 (41.5%)	117(58.5%)
Interval IUCD	112 (56.0%)	88 (44.0%)

41.5% of the women were aware of PPIUCD whereas 56% of the women were aware of interval IUCD.

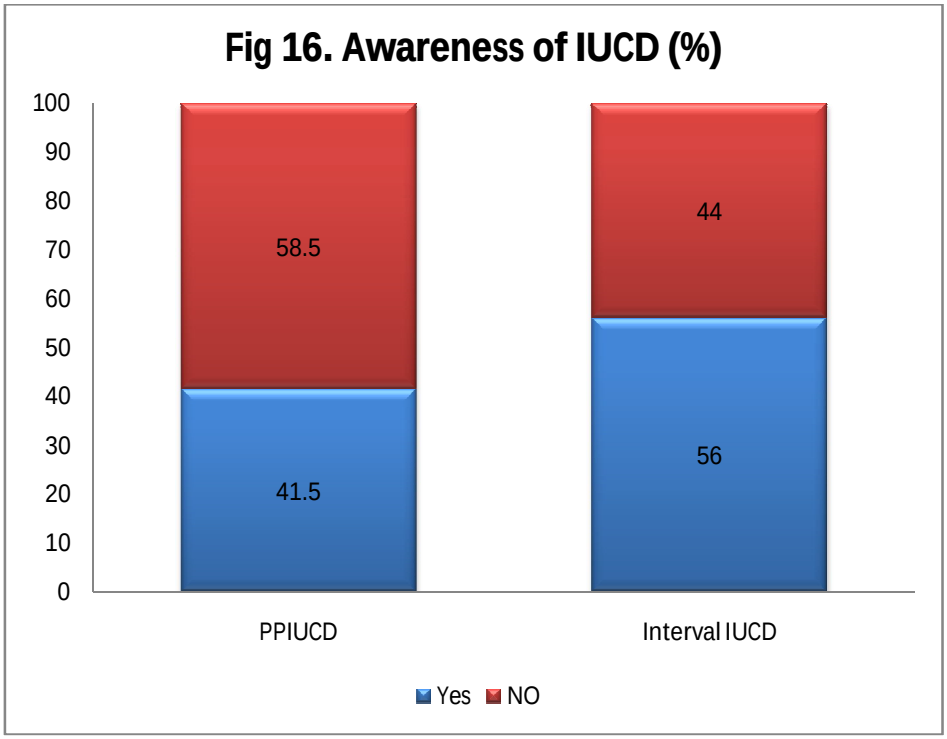


Table 9. Awareness of PPIUCD and Literacy

Education	Awareness of PPIUCD			
	YES (Number)	YES (%)	NO (Number)	NO (%)
Illiterate	1	1.20	6	5.13
Primary school	5	6.02	50	42.74
Middle school	22	26.51	35	29.91
Secondary school	25	30.12	17	14.53
Higher secondary	21	25.30	8	6.84
Degree/Diploma	9	10.84	1	0.85

Highly significant by Pearson Chi square test (P-Value = 0.0005)

Awareness of PPIUCD increases with literacy rate. Among those aware of PPIUCD, majority of them (30.12%) studied up to secondary school and among those unaware of PPIUCD, majority (42.74%) had studied up to primary school.

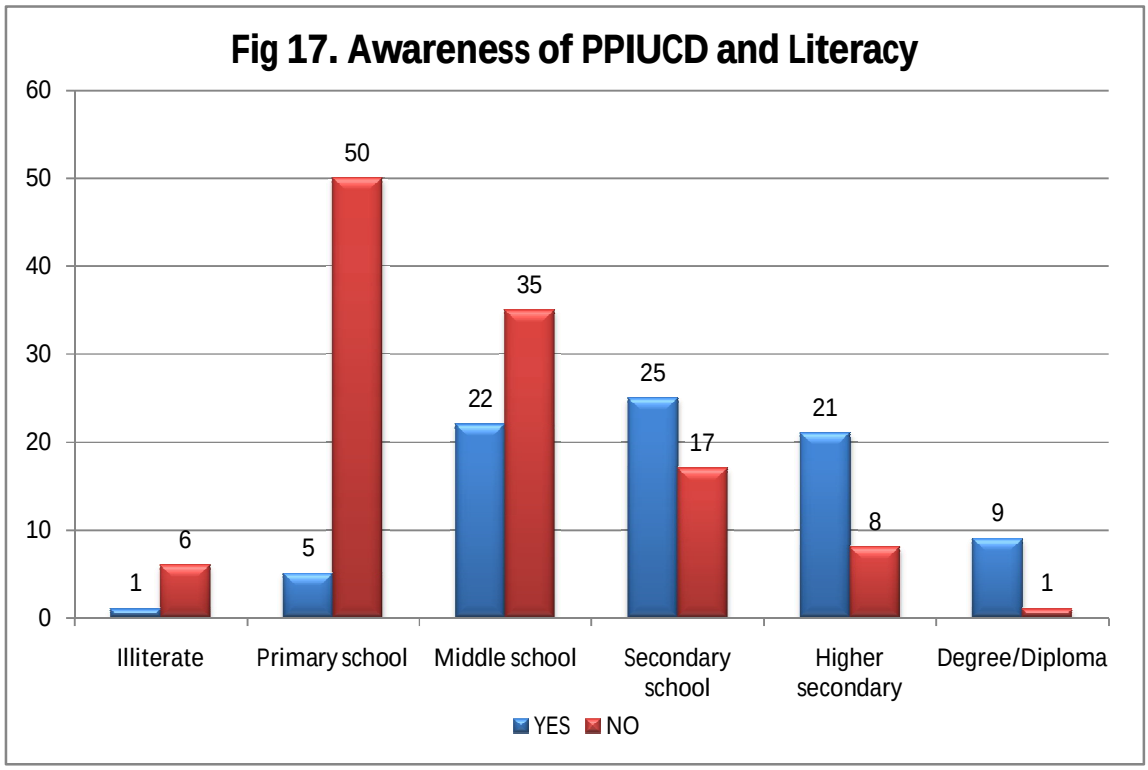


Fig 17. Awareness of PPIUCD and Literacy
60
50
40
30
20
10
0
1
6
5
50
22
35
25
17
21
8
9
1
Illiterate
Primary school
Middle school
Secondary school
Higher secondary
Degree/Diploma
YES
NO

Table 10. Previous contraceptive use

Previous contraceptive use		Number	Per cent
No		162	81
Yes	IUCD	16	8
	Condom	14	7
	OCP	8	4
Yes (Total)		38	19

Only 19% of the women had history of previous contraceptive use. IUCD was used by 8% of the women, 7% had history of condom use and 4% of the women had history of intake of oral contraceptive pills.

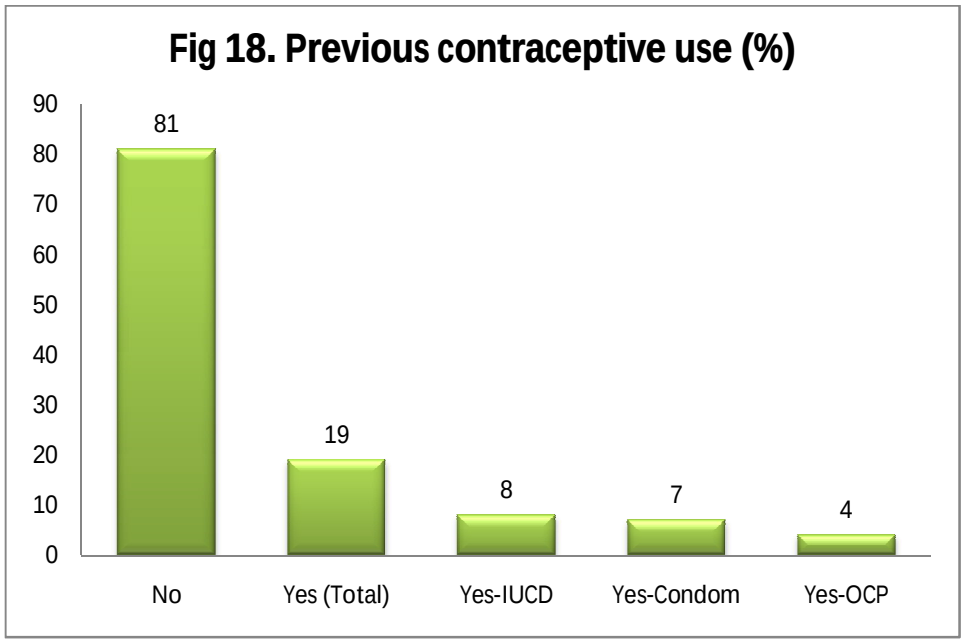


Table 11. Intended duration of IUCD use

Duration in years	Number	Per cent
1-2	42	21.0
3-5	111	55.5
Not sure	15	7.5
Till permanent sterilization	32	16.0

Majority of the women intended to use the IUCD for 3-5 years (55.5%). 21% of women intended to use the IUCD for 1-2 years, 7.5% of women were not sure about the intended duration of IUCD use and 16% of women intended to use the IUCD till permanent sterilization.

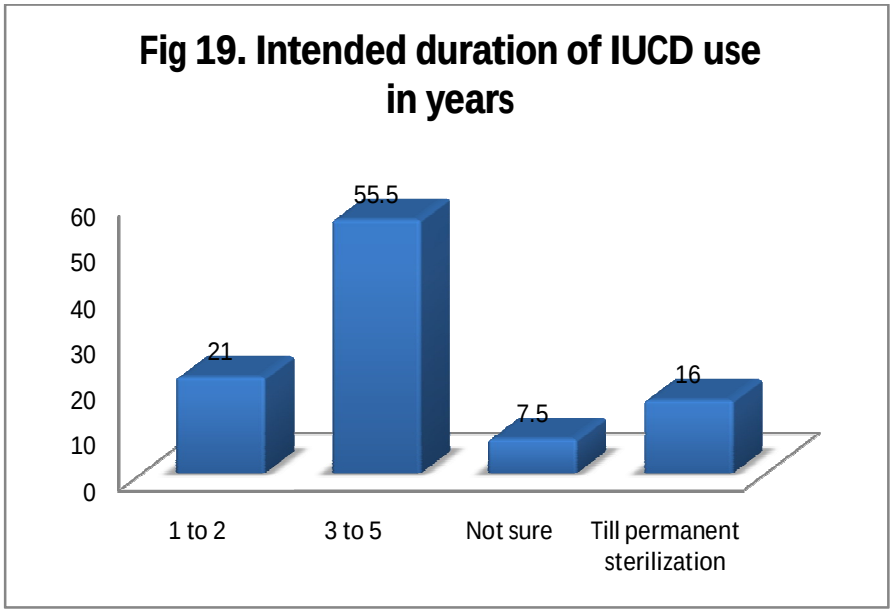


Table 12. Mode of delivery

Mode of delivery	Number	Per cent
LN	124	62
LSCS	76	38

62% of the women delivered by labour natural where as 38% had delivered by LSCS.

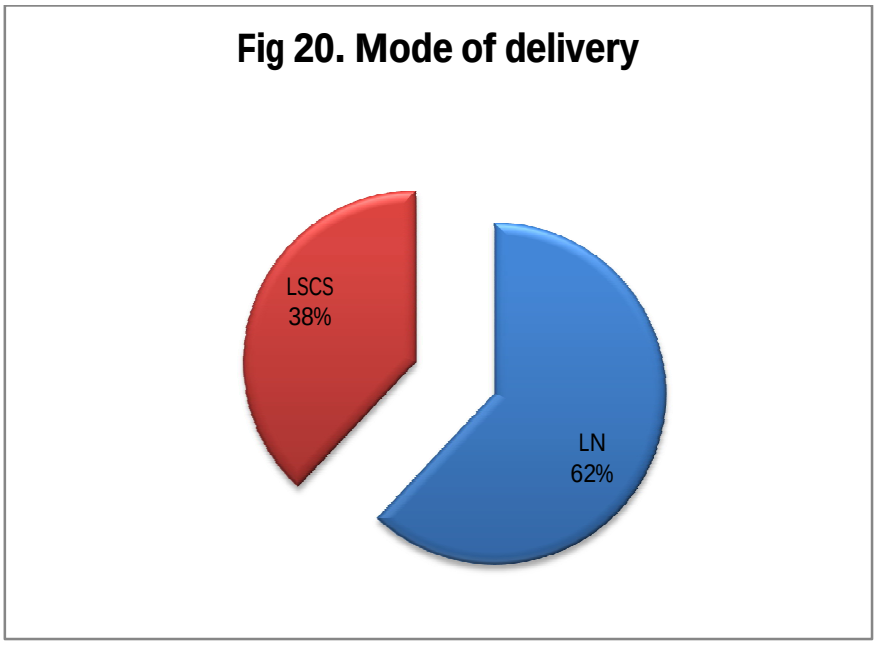


Table 13. Timing of insertion

Timing of insertion	Number	Per cent
Post placental	83	41.5
Immediate postpartum	41	20.5
Intracaesarean	76	38.0

In 41.5% of the women, the insertion was post placental, in 20.5%, the insertion was immediate postpartum and in 38% the insertion was intracaesarean.

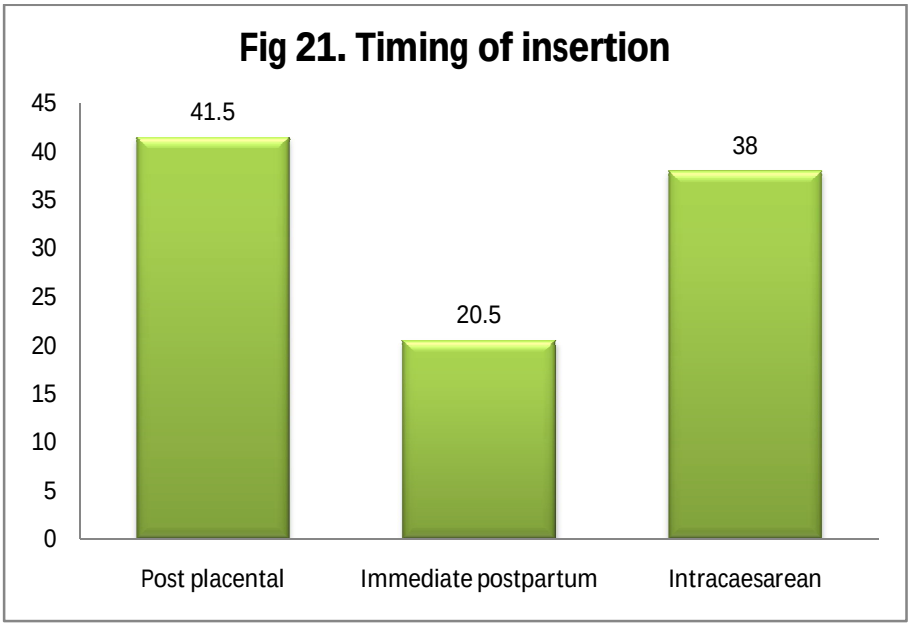


Table 14. Follow up

Follow up	6 weeks N=200(%)	3 months N=182(%)	6 months N=172(%)	Total
Lost to follow up	6	6	9	21
Return for follow up	191	175	157	
Return for removal	3	1	6	10
Expulsion	9	3	-	12
Continuation	182 (91.0%)	172 (86.0%)	157 (78.5%)	

6 women were lost to follow up at 6 weeks, another 6 women lost to follow up at 3 months and another 9 women lost to follow up at 6 months. Totally 21 women were lost to follow up.

3 women wanted removal of Cu T at 6 weeks, 1 woman wanted removal of Cu T at 3 months and 6 women wanted removal of Cu T at 6 months. Totally 10 women wanted Cu T removal.

9 women expelled the Cu T at 6 weeks and 3 women expelled the Cu T at 3 months. There were no expulsions at the 6^{th} month follow up visit. The gross cumulative expulsion rate at the end of the end of 6 months was 6%.

At 6 weeks, 182 women were willing to continue Cu T, at 3 months, 172 women were willing to continue Cu T and at the end of 6 months, 157 women were willing to continue Cu T. The continuation rate at the end of 6 months was 78.5%.

At the end of 6 months, out of the 200 women who were inserted PPIUCD, there were 10 removals, 12 expulsions with gross cumulative removal, expulsion and continuation rates of 5%, 6% and 78.5%.

Table 15. Expulsion and timing of insertion

Timing of insertion	Expulsion (Number)	Expulsion (%)
Post placental	3/83	3.61
Immediate postpartum	7/41	17.07
Intracaesarean	2/76	2.63

(P-value between immediate postpartum and intracaesarean IUCD= 0.009

P-value between immediate postpartum and post placental IUCD= 0.015)

At the end of 6 months, there were 12 expulsions out of which 3 (3.61%) were in post placental insertions, 7 (17.07%) in immediate postpartum insertions and 2 (2.63%) in intracaesarean insertions. The expulsion rate is significantly higher in immediate postpartum insertions compared to post placental insertions (P = 0.015). The expulsion rate in intracaesarean insertion is significantly lower than that of immediate postpartum insertions (P = 0.009). There is no statistical significance in the expulsion rate between post placental and intracaesarean insertions.

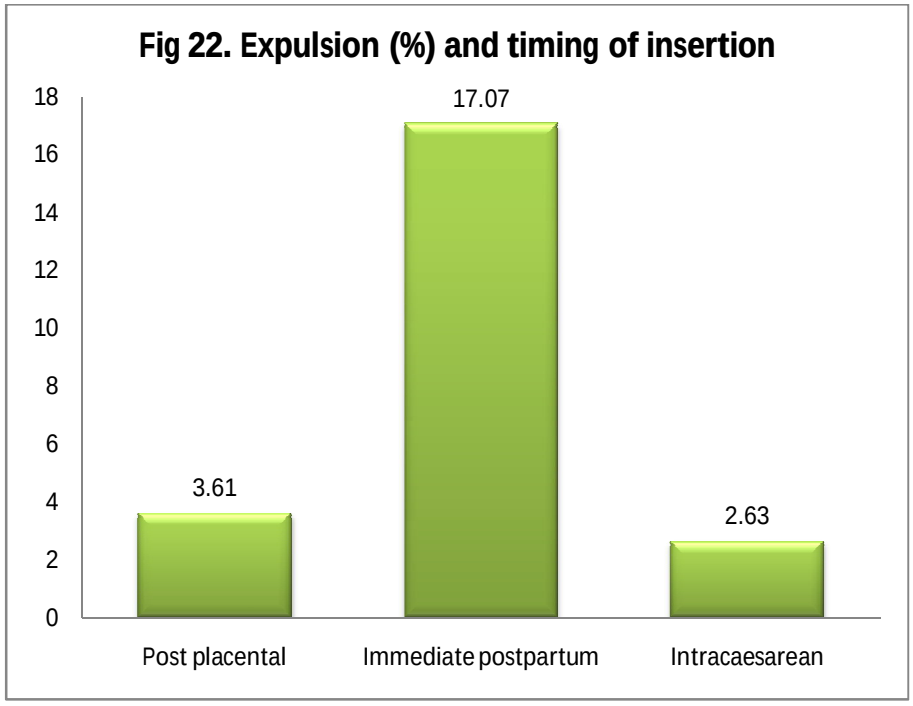


Table 16. Parity and Expulsion Rate

Parity	Expulsion (Number)	Expulsion (%)
Primiparous	5/154	3.3
Multiparous	7/46	15.2

P-Value = 0.007

5 (3.3%) expulsions were in primiparous women and 7 (15.2%) in multiparous women. The expulsion rate is significantly higher in multiparous women compared to primiparous women (P-value=0.007).

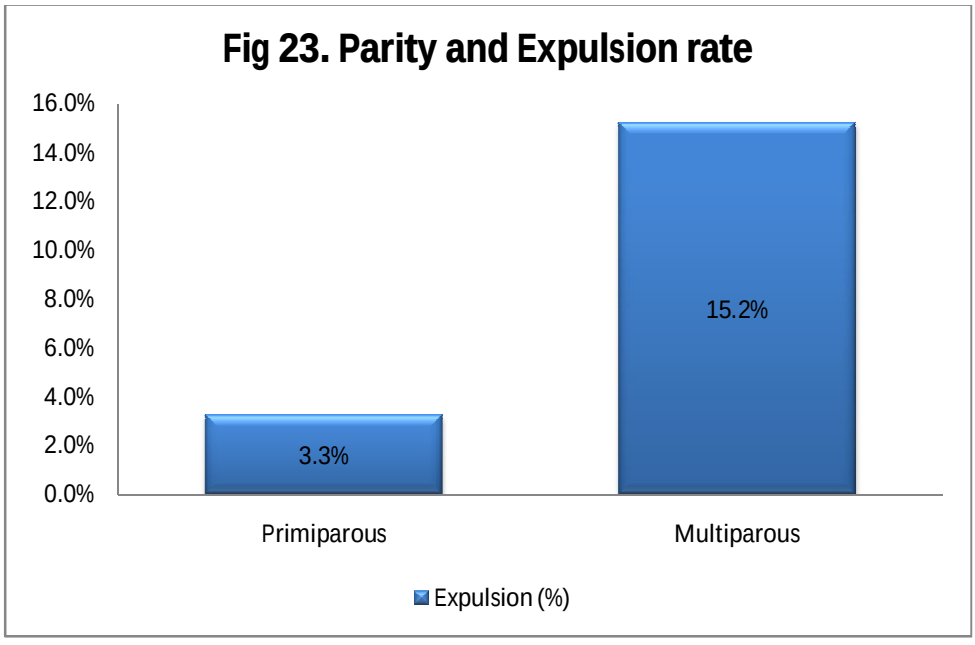


Table 17. Reasons for Cu T removal

Reason	6 weeks	3 months	6 months
HMB	-	1	-
For permanent sterilization	1	-	5
Psychosocial causes	2	-	1

At 6 weeks, 1 woman wanted removal for permanent sterilization, 2 women wanted removal for psychosocial causes. At 3 months, 1 woman wanted removal for heavy menstrual bleeding. At 6 months, 5 women wanted removal for permanent sterilization, 1 woman wanted removal for psychosocial causes.

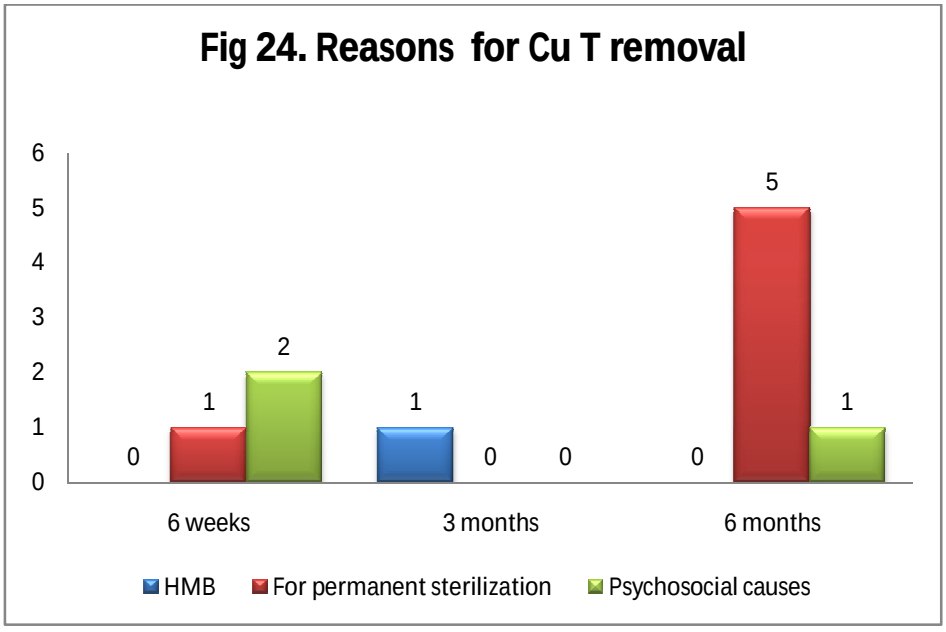


Table 18. Complications for follow up

Complications	6 weeks n=194	3 months n=176	6 months n=163
No complaints	166 (85.6%)	161 (91.5%)	152 (93.3%)
HMB	6 (3.1%)	8 (4.5%)	9 (5.5%)
Pain abdomen	7 (3.6%)	4 (2.3%)	2 (1.2%)
Missing strings	6 (3.1%)	-	-
Expulsion	7 (3.6%)	3 (1.7%)	-
Partial expulsion	2 (1.0%)	-	-

At 6 weeks, out of the 194 woman who returned for follow up, 166 (85.6%) had no complaints, 6 (3.1%) had heavy menstrual bleeding, 7 (3.6%) had pain abdomen, 6 (3.1%) had missing strings, 7 (3.6%) expelled the IUCD and 2(1.0%) had partial expulsion of IUCD.

At 3 months, out of the 176 woman who returned for follow up, 161 (91.5%) had no complaints, 8 (4.5%) had heavy menstrual bleeding, 4 (2.3 %) had pain abdomen, 3 (1.7 %) expelled the IUCD.

At 6 months, out of the 163 woman who returned for follow up, 152 (93.3%) had no complaints, 9 (5.5%) had heavy menstrual bleeding, 2 (1.2%) had pain abdomen.

There was no case of perforation, pelvic infection and pregnancy with the IUCD *in situ*.

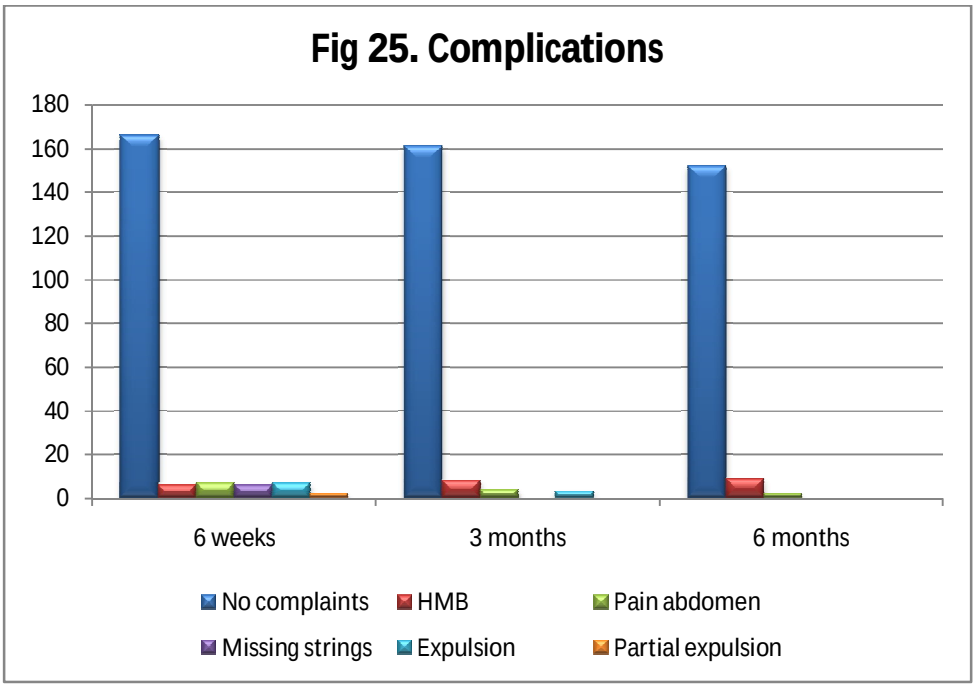


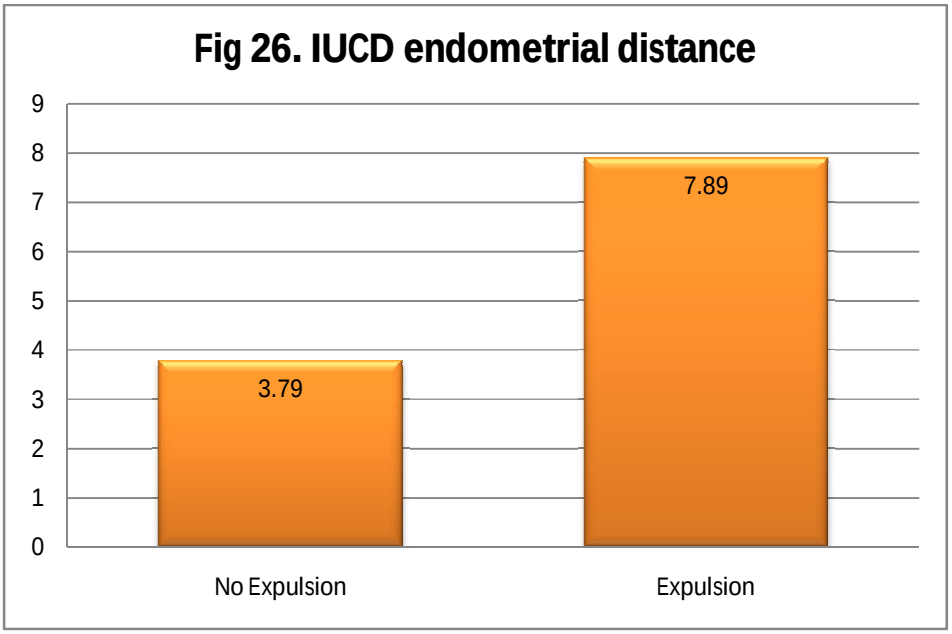
Table 19. IUCD endometrial distance in Expulsion group

IUCD Endometrial Distance in mm	Expulsion	
	Number	Percentage
Before dischage		
0 – 2.5 mm	0	0
2.5 – 5 mm	0	0
5 – 7.5 mm	3	25
7.5 – 10 mm	6	50
At 6 weeks		
> 10 mm	3	25
Total	**12**	**100**

Table 20. IUCD endometrial distance in No Expulsion group

IUCD Endometrial Distance in mm	No Expulsion	
	Number	**Percentage**
0 – 2.5 mm	37	19.68
2.5 – 5 mm	116	61.70
5 – 7.5 mm	35	18.62
7.5 – 10 mm	0	0.00
> 10 mm	0	0.00
Total	**188**	**100**

Out of the 200 women included in the study, 12 women expelled the Cu T. 9 out of 12 women expelled the Cu T at 6 weeks and 3 women at 3 months follow up visit respectively. Of the 9 women who expelled the Cu T at 6 weeks follow up visit, 6 women had IUCD endometrial distance (before discharge) ranging from 7.5- 10.0 mm and 3 women between 5.0- 7.5 mm respectively. 3 women who expelled the Cu T at 3 months follow up had IUCD endometrial distance of > 10.0 mm at 6 weeks follow up visit. Of the 188 women who had no expulsion, majority *i.e* 116 women (61.70%) had IUCD endometrial distance ranging from 2.5- 5.0 mm, 37 women (19.68%) between 0-2.5 mm and 35 women (18.62%) between 5.0-7.5 mm respectively. Mean IUCD endometrial distance before discharge in the no expulsion (n=188) and expulsion group (n=12) is 3.787 ± SD 1.5037 and 7.892 ± SD 1.2288 respectively.



Independent samples t-test showed that the IUCD endometrial distance before discharge is significantly higher in the expulsion group as compared to no expulsion group (p=0.0005).

DISCUSSION

DISCUSSION

The postpartum period is an opportunity for counselling regarding the methods of family planning, including IUCD insertion so as to avoid conceptions that are unintended. Compared to women who had IUCD insertion in the interval period, those counselled for IUCD insertion in the postpartum period were ten times more likely to be used the method.[51] The intrauterine devices provide reversible long lasting and effective method of birth control. [12, 52, 53]

In this study, majority of the women were aged between 21-25 years (54.5%), most of them had studied up to middle school (29.5%), 95% of them were housewives. Most of them belonged to lower socioeconomic status (54%) as per modified Kuppusamy's classification.77% of the women were primiparous and 78.5% of them had one living child.

Awareness of PPIUCD was less (41.5%) compared to interval IUCD (56%). According to Geetha Katheit *et al.*[59] awareness about post placental IUCD was 5.79% which was low compared to 73.55% awareness for interval IUCD. In a study conducted by Gujju RLB *et al.*[66] only 54% of the women were aware of IUCD before they received counselling and only 7% of them gave history of prior IUCD use. Awareness of PPIUCD has a direct relation with women's education (p=0.0005). According to Ullah and Chakraborty[72], women's education was the most important determining factor for contraceptive use. According to Choudhary *et al.*,[73] secondary and higher education influenced contraceptive usage.

In this study, only 38 women (19%) had history of previous contraceptive use. IUCD's were used by only 16 women (8%), male condoms by 14 women (7%) and OCP by 8 women (4%). 162 women (81%) had never used any contraceptive method in the past. This is comparable to a study conducted by Rekha G. Daver *et al.*[65] in which 73% of the women had no previous history of contraceptive use and only 14 women (11%) had used IUCD before. In a study conducted by Gujju RLB *et al.*[66] only 7% of those who were aware of IUCD had history of prior IUCD use. In a study conducted by Farhat Arshad *et al.* [67] 110 women (45.83%) had no previous history of contraceptive use, barrier methods were used by 47 (19.58%), natural methods by 66 (27.5%), other methods (IUCD/OCP/injectables) by 17 (13.07).

In this study, 36.5% of the women received counselling in the antenatal period, 23.5% in early labour, 19.5% before LSCS and 20.5% in the postpartum period. According to a study conducted by Gujju RLB *et al.* [66] 6.59% received counselling in the antenatal period, 3.07% received counselling in early labour and 98.16% received counselling prior to LSCS.

In this study, the gross cumulative expulsion rate at the end of 6 months was 6%. All the expulsions occurred within three months following IUCD insertion. This is consistent with the study done by Kittur *et al.*[58] in 2012 in which the rate of expulsion was 5.23% and they also concluded that the expulsion rates could be minimized if the insertion was done by a trained person and proper fundal placement was ensured. According to Geetha Katheit *et al.*[59] (2013), the expulsion rate was 10.5% following post placental IUCD insertion and it was concluded that

this was due to low placement of IUCD which resulted from lack of experience. Another study by Raffat Sultana *et al.*[60] had 8% cumulative expulsion rate who also concluded that intracaesarean insertions had lower expulsion rates compared to post placental insertion (1.8% versus 6.5%). According to Anjum Afshan *et al.* [61] (2014), the expulsion rate was 5% and 6% at 6 weeks and 6 months respectively.

At the end of 6 months, there were 12 expulsions out of which 3 (3.61%) were in post placental insertions, 7 (17.07%) in immediate postpartum insertions and 2 (2.63%) in intracaesarean insertions. The expulsion rate is significantly higher in immediate postpartum insertions compared to post placental insertion (P = 0.015). The expulsion rate in intracaesarean insertion is significantly lower than that of immediate postpartum insertions (P = 0.009). There is no statistical significance in the expulsion rate between post placental and intracaesarean insertions. The low expulsion rate in intracaesarean insertions may be due to the direct fundal placement of the IUCD. According to Gupta A *et al.* [71] (2013) the expulsion rate following vaginal PPIUCD (6.6%) was significantly higher than that of intracaesarean insertions (2%) ($p < 0.05$). According to Raffat Sultana *et al.* [60] (2015), the expulsion rate following intracaesarean insertion was significantly less than that following vaginal PPIUCD (6.6% vs 1.8%). Analysis of 4 multisite studies in UN-POPIN report [44] showed that the cumulative expulsion rate after 6 months was 9% for post placental insertions and 37% for insertions between 24-48 hours after delivery.

In this study, 5 (3.3%) expulsions were in primiparous women and 7 (15.2%) in multiparous women. The expulsion rate is significantly higher in

multiparous women compared to primiparous women (P-value=0.007). The higher expulsion rate in multiparous women may be due to parous cervix. According to Gupta A *et al.*[71] expulsion rate was significantly higher in multiparous women compared to primiparous women following both vaginal PPIUCD insertions (4.67% vs 2%) as well as intracaesarean insertions (0% vs 2%).

In this study, heavy menstrual bleeding was present in 6 (3.1%) at 6 weeks, 8 women (4.5%) at 3 months and 9 women (5.5%) at 6 months. Pain abdomen was present in 7 women (3.6%) at 6 weeks, 4 women (2.3%) at 3 months and 2 women (1.2%) at 6 months. Missing strings were complained by 6 women (3.1%) at 6 weeks in whom pelvic examination and ultrasound was done which confirmed that the IUCD was *in situ* and they were reassured. There was no case of infection, perforation or unplanned pregnancy. According to a study by Rekha G. Daver *et al.*,[65] 7 (8%) had menstrual complaints at 6 months, pain abdomen was present in 11(10%), 5 (5%), 2 (2%), at 6 weeks, 3 months and 6 months respectively. 4 (5%) women could not feel the threads at 6 months. There were no major complications noted.

Satyavathi Maluchuru *et al.*[64] (2015) conducted a study in which complications occurred in 62 women, of which 23(11.5%) had bleeding, 32 (16%) had string problems. There were no major complications. Among those with missing strings, in 28 women the strings were found in cervical canal and rest 4 needed USG to confirm that the IUCD was *in situ*. According to a study, Farhat Arshad *et al.*,[67] menstrual problems were present in 30 women (11.6%) and 17 women (10.24%) at 6 weeks and 3 months respectively. Pain abdomen was present

in 25 (14.20%), 22 (13.25%) and 24 (15%) at 6 weeks, 3 months and 6 months respectively and vaginal discharge was present in 22 (12.5%), 20 (12%) and 21(13.12%) respectively. No case of PID or perforation was noted. 9 (5.1%) had string problems and USG confirmed that the IUCD was in situ.

In this study, Cu T removal was done in 10 women (5%). 1 woman wanted removal for heavy menstrual bleeding not responding to medical treatment, 6 women wanted removal for permanent sterilization, 3 women wanted removal for psychosocial causes. In a study conducted by Satyavathi Maluchuru *et al.*[64] (2015), 11 women wanted Cu T removal and the reasons were due to bleeding in 3 women, menstrual disturbances in 2 women, family pressure in 3 women, string problems in 2 women and pain abdomen in 1 woman. According to a study conducted by Rekha G. Daver *et al.*[65] Cu T removal was done in 20 of 107 patients (19%) of which 12 were due to displacement, 2 for heavy menstrual bleeding, 5 for abdominal pain and 1 for personal reasons.

In this study, the continuation rates at 6 weeks, 3 months and 6 months postpartum were 91%, 86% and 78.5% respectively. This is consistent with a study conducted by Raffat Sultana *et al.* [60](2015) who reported continuation rates of 94%, 92% and 82.6% at 1 week, 6 weeks and 6 months postpartum respectively. According to a study conducted by Anjum Afshan *et al.* [61](2014) the continuation rates at 6 weeks and 6 months were 90% and 84% respectively. Sahaja Kittur *et al.*[58] (2012) reported continuation rate of 86.19% at 6 weeks follow up.

Independent samples t-test showed that the IUCD endometrial distance before discharge is significantly higher in the expulsion group as compared to no expulsion group (p=0.0005).This is comparable to a study by Gonclaves[68] who concluded that those who expelled the IUCD had greater distance. According to a study conducted by N.S. El Beltagy *et al.,*[69] there is a direct correlation between the expulsion rate and the IUCD endometrial distance at the uterine fundus using a cut off of 10 mm.

CONCLUSIONS

CONCLUSIONS

- Postpartum intrauterine contraceptives device (PPIUCD) provides a safe, effective and long lasting reversible contraception for women before discharge from the hospital in low resource settings.
- During the postpartum period women are highly motivated and receptive to family planning advice and an additional visit to the hospital is not required.
- PPIUCD is also beneficial to the clinical staff as it saves time and few additional supplies and equipment are needed.
- PPIUCD is very safe with minimal side effects like heavy menstrual bleeding, pain abdomen, missing strings.
- Perforation is very rare as the uterus is thick walled.
- Although the expulsion rates are high compared to interval Cu T insertion, they can be reduced by proper fundal placement.
- Although the expulsion rates are higher compared to interval IUCD insertion, they are outweighed by contraceptive benefits particularly in those women who have difficulty in accessing medical care.
- Increased IUCD endometrial distance measured by ultrasound is associated with increased expulsion.
- Ultrasound measurement of IUCD endometrial distance can be used to detect risk of expulsion.

LIMITATIONS

LIMITATIONS

1. In my study, the sample size is small. Studies with large sample size are recommended.
2. Duration of follow up should be increased to analyse the safety and efficacy of PPIUCD in the long run.
3. Lost to follow up was a limitation of the study as a clear conclusion could not be made as to what happened to those who did not return for follow up.

SUMMARY

SUMMARY

This is a prospective study in which 200 women fulfilling the inclusion criteria underwent postpartum insertion of Cu T 380A after obtaining informed consent at the department of obstetrics and gynaecology, Coimbatore Medical College Hospital. Data was collected using a questionnaire. All women were followed up at 6 weeks, 3 months and 6 months postpartum. During the follow up visits, complaints were noted, clinical examination was done and IUCD endometrial distance was measured using ultrasonography. The safety, efficacy and continuation rates of PPIUCD were analysed.

In my study majority of the women were aged between 21-25 years (54.5%), most of them had studied up to middle school (29.5%), 95% of the women were housewives and most of the women belonged to lower socioeconomic status (54%). Majority of the women were para 1 (77%) and most of the women had one living child (78.5%). 36.5% of the women were counselled in the antenatal period, 23.5% were counselled in early labour, 19.5% were counselled before LSCS and 20.5% were counselled in the postpartum period.

41.5% of the women were aware of PPIUCD whereas 56% of the women were aware of interval IUCD. Awareness of PPIUCD increases with literacy rate. Among those aware of PPIUCD, majority of them (30.12%) had studied up to secondary school and among those unaware of PPIUCD, majority had studied up to primary school (42.74%).

In my study only 19% of the women had history of previous contraceptive use. IUCD was used by 8% of the women. Majority of the women intended to use the IUCD for 3-5 years (55.5%).

In my study, 62% of the women delivered by labour natural where as 38% had delivered by LSCS. In 41.5% of the women, the insertion was post placental, in 20.5%, the insertion was immediate postpartum and in 38% the insertion was intracaesarean.

6 women were lost to follow up at 6 weeks, another 6 women lost to follow up at 3 months and another 9 women lost to follow up at 6 months. Totally 21 women were lost to follow up.

3 women wanted removal of Cu T at 6 weeks, 1 woman wanted removal of Cu T at 3 months and 6 women wanted removal of Cu T at 6 months. Totally 10 women wanted Cu T removal.

9 women expelled the Cu T at 6 weeks and 3 women expelled the Cu T at 3 months. There were no expulsions at the 6^{th} month follow up visit. The gross cumulative expulsion rate at the end of 6 months was 6%.

At the end of 6 months, there were 12 expulsions out of which 3 (3.61%) were in post placental insertions, 7 (17.07%) in immediate postpartum insertions and 2 (2.63%) in intracaesarean insertions. The expulsion rate is significantly higher in immediate postpartum insertions compared to post placental insertion (P = 0.015). The expulsion rate in intracaesarean insertion is significantly lower than that of immediate postpartum insertions (P = 0.009). There is no statistical

significance in the expulsion rate between post placental and intracaesarean insertions.

In this study 5 (3.3%) expulsions were in primiparous women and 7 (15.2%) in multiparous women. The expulsion rate is significantly higher in multiparous women compared to primiparous women (P-value=0.007).

At 6 weeks, 182 women were willing to continue Cu T, at 3 months, 172 women were willing to continue CuT and at the end of 6 months, 157 women were willing to continue Cu T. The continuation rate at the end of 6 months was 78.5%.

At the end of 6 months, out of the 200 women who were inserted PPIUCD, there were 10 removals, 12 expulsions with gross cumulative removal, expulsion and continuation rates of 5%, 6% and 78.5%.

At 6 weeks, 1 woman wanted removal for permanent sterilization, 2 women wanted removal for psychosocial causes. At 3 months, 1 woman wanted removal for heavy menstrual bleeding. At 6 months, 5 women wanted removal for permanent sterilization, 1 woman wanted removal for psychosocial causes.

At 6 weeks, out of the 194 woman who returned for follow up, 166 (85.6%) had no complaints, 6 (3.1%) had heavy menstrual bleeding, 7 (3.6%) had pain abdomen, 6 (3.1%) had missing strings, 7 (3.6%) expelled the IUCD and 2(1.0%) had partial expulsion of IUCD.

At 3 months, out of the 176 woman who returned for follow up, 161 (91.5%) had no complaints, 8 (4.5%) had heavy menstrual bleeding, 4 (2.3 %) had pain abdomen, 3 (1.7 %) expelled the IUCD.

At 6 months, out of the 163 woman who returned for follow up, 152 (93.3%) had no complaints, 9 (5.5%) had heavy menstrual bleeding, 2 (1.2%) had pain abdomen.

There was no case of perforation, pelvic infection and pregnancy with the IUCD *in situ*.

Mean IUCD endometrial distance before discharge in the no expulsion (n=188) and expulsion group (n=12) is 3.787 ± SD 1.5037 and 7.892 ± SD 1.2288 respectively. Independent samples t-test showed that the IUCD endometrial distance before discharge is significantly higher in the expulsion group as compared to no expulsion group (p=0.0005). Thus postpartum intrauterine contraceptives device (PPIUCD) provides a safe, effective and long lasting reversible contraception for women before discharge from the hospital.

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PROFORMA

Name	:	
Age	:	
Hospital registration no	:	
Address	:	
Telephone no	:	
Educational status	:	Illiterate
		Primary school
		Middle school
		Secondary school
		Higher secondary school
		Degree/Diploma
Occupation	:	Housewife
		Employed
Socioeconomic status	:	Lower
		Upper lower
		Lower middle
		Upper middle
		Upper
Menstrual history	:	Menarche
		Duration of menstrual bleeding
		Length of menstrual cycles
		Amount of flow – heavy, normal, scanty

Obstetric history : Gestational age- wks

Gravida –

Parity –

Abortion-

No of living children-

Mode of delivery : Vaginal delivery

Instrumental (forceps/ vacuum)

Caesarean section

History of PPH : Yes/ No

Any history of puerperal / post abortal PID : Yes / No

Have you used any method of contraception in the past : Yes / No

If yes, which method of contraception have you used in the past?

Natural methods

Male condoms

Female condom

Contraceptive pills

IUCD

Others – specify

Intended duration of contraceptive use:

1-2 Years

3-5 Years

Not Sure

Till Permanent Sterilization

Timing of counselling:	Antenatal period
	In early labour
	Before LSCS
	Postpartum period
Timing of IUCD insertion:	Post-placental
	Immediate Postpartum
	Intracaesarean

Was this pregnancy planned / unplanned?

Have you heard about interval IUCD insertion?	Yes / No
Have you heard about PPIUCD insertion?	Yes / No
If yes how?	Media
	AN clinic
	FP clinic
	From a relative/friend
	Others- specify
Do you intend to deliver again?	Yes / No
If yes, when do you intend to deliver?	1-2 years
	3-5 years
	After 5 years
	Not sure
	No intention

PPIUCD FOLLOW UP CARD

Name Telephone number of Principal Investigator

Date of insertion

Type of IUCD

Date of removal/replacement

Follow up visits

Follow up	**6 weeks Postpartum**	**3 months Postpartum**	**6 months Postpartum**
Date			
Heavy menstrual bleeding			
Unusual abdominal/pelvic pain			
Unusual vaginal discharge			
Fever			
Thread felt/not?			
Expulsion			
Missed periods			
Abdominal examination- Supra pubic tenderness Involution of uterus			
Speculum examination- If strings are visible? Discharge			
Bimanual examination- Cervical motion tenderness			

Ultrasonography-TVS/TAS -IUCD endometrial distance -if strings are not visible (confirm IUCD position) -To confirm expulsion -Unplanned pregnancy -Perforation			
Patient willingness -demanding removal -Willingness for continuation -Willingness for reinsertion if expelled			

CONSENT FORM

Hereby I volunteer and to participate in this study "**EVALUATION OF SAFETY, EFFICACY AND CONTINUATION RATES OF POSTPARTUM INTRAUTERINE CONTRACEPTIVE DEVICES (PPIUCD)"** was fully explained about the nature of this study by the doctor, knowing which I Mr/Mrs _____ fully consent to volunteer in this study.

.

Date:

Place: Signature of the Volunteer

xggLjy;gotk;

bgah; :

taJ :

ghypdk; :

Kfthp :

muR nfhit kUj;Jtf;fy;Y}hpapy;kfg;ngW kwWk;bgz;fs;kUj;Jt Jiwapy;gl;l nkwgogg[gapYk;khz tp **f.rej;putjdh** mth;fs;nkwbfhs;Sk; **“kfg;ngWf;F gpd;fhggh;Oapd;(fUjj;jil rhjdk) ghJfhgg[brayj;pwd;kwWk; bjhlUk; tpfpj';fspd;kjpggpL”** gwwpa Ma;tpy;bra;Kiw kwWk;midj;J tpsf;f';fisak; nfl;Lfbfhz;L vdJ re;njf';fis bjhptpLj;jpf; bfhz;nld;vdgij bjhptpj;Jf;bfhs;fpnwd;

ehd; ,e;j Ma;tpy; KG rkkjj;JlDk; Ra rpe;jidaDk; fye;J bfhs;s rkkjpf;fpnwd;

,e;j Ma;tpy;vd;idg;gwwpa midj;J tputu';fs;ghJfhf;fggLtJld; ,jd;Kotpfs; Ma;tpjHpy; btspapLggLtjpy; Mlnrgid ,y;iy vdgij bjhptpj;Jf;bfhs;fpnwd; vej neuj;jpYk; ,e;j Ma;tpy; ,Ue;J ehd;tpyfpf; bfhs;s vdf;F chpikczL vdgijak;mwpntd;

,lk;:

njjp: **ifbahggk;/nuif**

MASTER CHART

Sl. No	Name	Age	IP No.	Education	Occupation	SES	Parity	No. of living children	Time of counselling	Awareness of IUCD		Previous contraceptive use	Intended duration of IUCD use	Mode of delivery	Timing of insertion	Return for follow up/ removal			Complications			IUCD Endometrial distance				Willingness to continue		
										PPIUCD	Interval IUCD					6 weeks	3 months	6 months	6 weeks	3 months	6 months	Before discharge	6 weeks	3 months	6 months	6 weeks	3 months	6 months
1	Thenmozhi	30	46803	3rd std	Housewife	Lower	P2L2	2	Before LSCS	No	Yes	No	3yrs	LSCS	Intracaesarean	Yes	Yes	Yes	Nil	Nil	Nil	2.1	3.2	3.1	3.3	Continue	Continue	Continue
2	Anbarasi	22	46821	12th std	Housewife	Upper lower	P2L2 A1	2	AN	Yes	Yes	No	4yrs	LN	Postplacental	Yes			**EXPUL-SION**			8.5						
3	Priyavani	29	46843	12th std	Employed	Lower middle	P1L1 A1	1	AN	Yes	Yes	Yes-condom	3yrs	LSCS	Intracaesarean	Yes	Yes	Yes	Nil	Nil	Nil	1.8	2.6	2.5	2.6	Continue	Continue	Continue
4	Meena	24	46847	6th std	Housewife	Upper lower	P2L2	2	Early labour	No	No	No	Till permanent sterilzation	LN	Postplacental	Yes	Yes	Yes ®	Nil	Nil	Nil	4.2	4.5	4.2	4.3	Continue	Continue	**REMOVAL**
5	Lalitha	26	46849	10th std	Housewife	Upper lower	P1L1	1	Early labour	No	Yes	No	2yrs	LN	Postplacental	Yes	Yes	Yes	Missing strings	Nil	Nil	3.9	4.1	4.2	4.2	Continue	Continue	Continue
6	Prashanthini	22	46851	8th std	Housewife	Lower	P1L1	1	Early labour	No	Yes	No	4yrs	LN	Postplacental	Yes	Yes	Yes	Nil	Nil	HMB	5.6	5.4	5.3	5.4	Continue	Continue	Continue
7	Dhivya	23	46854	10th std	Housewife	Upper lower	P1L1	1	AN	Yes	Yes	No	3yrs	LSCS	Intracaesarean	Yes	Yes	**No**	Nil	Nil		1.7	1.9	1.8		Continue	Continue	
8	Fathima	19	46857	6th std	Housewife	Lower	P1L1	1	Early labour	No	No	No	5yrs	LN	Post placental	Yes	Yes	Yes	Nil	Nil	Nil	3.2	3.4	3.3	3.5	Continue	Continue	Continue
9	Mangalam	26	46858	3rd std	Housewife	Lower	P3L2	2	PP	No	No	No	2yrs	LN	Immediate PP	Yes			**EXPUL-SION**			9.2				**Re-insertion**		
10	Saraswathy	28	46863	8th std	Housewife	Lower	P2L2	2	Before LSCS	No	No	No	Till permanent sterilzation	LSCS	Intracaesarean	Yes	Yes	Yes	Nil	Nil	Nil	2.6	2.3	2.4	2.3	Continue	Continue	Continue
11	Divya bharathi	25	46869	B.com	Housewife	Lower middle	P1L1	1	AN	Yes	Yes	No	5yrs	LN	Postplacental	Yes	Yes	Yes	Nil	Nil	Nil	5.8	6.2	6.1	6.3	Continue	Continue	Continue
12	Faridha	24	46876	9th std	Housewife	Upper lower	P2L2 A1	2	Before LSCS	No	Yes	No	Till permanent sterilzation	LSCS	Intracaesarean	Yes	Yes	Yes	Nil	Nil	Nil	1.6	1.9	1.8	1.9	Continue	Continue	Continue
13	Mani	21	46872	10th std	Housewife	Upper lower	P1L1	1	Early labour	No	Yes	No	3yrs	LN	Postplacental	Yes	Yes	Yes	Pain abdomen	Nil	Nil	6.2	5.6	5.7	5.8	Continue	Continue	Continue
14	Umamaheshwari	31	46883	Dip. In nursing	Employed	Upper middle	P1L1	1	AN	Yes	Yes	Yes-condom	3yrs	LSCS	Intracaesarean	Yes	Yes	Yes	Nil	Nil	Nil	2.1	1.9	1.8	1.8	Continue	Continue	Continue
15	Karpagam	24	46885	9th std	Housewife	Lower	P1L1	1	AN	Yes	Yes	No	4yrs	LN	Postplacental	Yes	Yes	Yes	HMB	Nil	Nil	4.8	4.2	4.3	4.3	Continue	Continue	Continue
16	Periamma	24	46889	10th std	Housewife	Upper lower	P2L2	2	Early labour	No	Yes	No	Till permanent sterilzation	LN	Postplacental	Yes	Yes	Yes	Nil	Nil	Nil	5.5	6.2	6.1	6.3	Continue	Continue	Continue
17	Mary	28	46891	12th std	Housewife	Upper lower	P1L1 A1	1	PP	No	No	No	2yrs	LN	Immediate PP	Yes	Yes	Yes	Nil	Nil	Nil	7.1	6.6	6.4	6.3	Continue	Continue	Continue
18	Suguna	26	46893	11th std	Housewife	Lower	P1L1	1	AN	Yes	Yes	No	3yrs	LN	Postplacental	Yes	**No**		Nil			3.9	4.4			Continue		
19	Vidhya	29	46887	6th std	Housewife	Lower	P1L1	1	AN	Yes	Yes	No	Not sure	LSCS	Intracaesarean	Yes	Yes	Yes	Missing strings	Nil	Nil	2.4	1.8	1.9	1.7	Continue	Continue	Continue
20	Jansi rani	20	46893	8th std	Housewife	Lower	P1L1	1	Before LSCS	No	No	No	2yrs	LSCS	Intracaesarean	Yes	Yes	Yes	Nil	Nil	HMB	1.3	1.1	1.1	1.2	Continue	Continue	Continue
21	Subathra	26	46895	BSc computer science	Employed	Lower middle	P1L1	1	AN	Yes	Yes	Yes-condom	5yrs	LN	Postplacental	Yes	Yes	Yes	Nil	Nil	Nil	3.3	3.6	3.5	3.4	Continue	Continue	Continue
22	Rajathi	34	46896	5th std	Housewife	Lower	P1L1 A1	1	Early labour	No	No	No	Not sure	LN	Postplacental	Yes	Yes	Yes	Nil	Nil	Nil	5.3	5.1	4.9	5	Continue	Continue	Continue
23	Radha	20	46899	Illiterate	Housewife	Lower	P1L1	1	Before LSCS	No	No	No	2yrs	LSCS	Intracaesarean	Yes	Yes	**No**	Nil	Nil		1.9	1.6	1.5		Continue	Continue	

Sl. No	Name	Age	IP No.	Education	Occupation	SES	Parity	No. of living children	Time of counselling	Awareness of IUCD		Previous contraceptive use	Intended duration of IUCD use	Mode of delivery	Timing of insertion	Return for follow up/ removal			Complications			IUCD Endometrial distance				Willingness to continue		
										PPIUCD	Interval IUCD					6 weeks	3 months	6 months	6 weeks	3 months	6 months	Before discharge	6 weeks	3 months	6 months	6 weeks	3 months	6 months
24	Kanimozhi	23	46907	10th std	Housewife	Upper lower	P1L1	1	PP	No	No	No	3yrs	LN	Immediate PP	Yes	Yes	Yes	Nil	Nil	Nil	4.6	4.9	4.8	4.8	Continue	Continue	Continue
25	Vijaya	22	46910	7th std	Housewife	Lower	P1L1	1	Early labour	No	No	No	2yrs	LN	Postplacental	Yes	Yes	Yes	Nil	Nil	Nil	3.2	4.1	4.3	4.3	Continue	Continue	Continue
26	Princy	20	46916	9th std	Housewife	Upper lower	P1L1	1	Early labour	No	Yes	No	3yrs	LN	Postplacental	Yes	Yes	Yes	Nil	Nil	Nil	4.1	3.8	3.2	3.4	Continue	Continue	Continue
27	Kanagamani	20	46917	12th std	Housewife	Upper lower	P1L1	1	AN	Yes	Yes	No	3yrs	LSCS	Intracaesarean	Yes	Yes	Yes	Nil	Nil	Nil	1.5	1.1	1.2	1.2	Continue	Continue	Continue
28	Poongodi	23	46921	10th std	Housewife	Lower	P1L1	1	PP	No	Yes	Yes-OCP	Not sure	LN	Immediate PP	Yes	Yes	Yes	Nil	Nil	Nil	7.1	6.8	6.5	6.5	Continue	Continue	Continue
29	Anitha	25	46924	8th std	Housewife	Lower	P1L1	1	Early labour	No	No	No	5yrs	LN	Postplacental	Yes ®			Nil			3.8	4.5			**REMOVAL**		
30	Jothibai	24	46928	10th std	Housewife	Upper lower	P1L1	1	Before LSCS	No	No	No	3yrs	LSCS	Intracaesarean	Yes	Yes	Yes	Nil	Nil	Nil	3.3	2.9	2.9	2.8	Continue	Continue	Continue
31	Suganya	30	46933	5th std	Housewife	Lower	P1L1 A1	1	Before LSCS	No	No	No	Not sure	LSCS	Intracaesarean	Yes	Yes	Yes	Nil	Nil	Nil	3.7	4.6	4.3	4.2	Continue	Continue	Continue
32	Praseetha	21	46935	8th std	Housewife	Upper lower	P1L1	1	PP	No	No	No	5yrs	LN	Immediate PP	Yes	Yes	Yes	Nil	Nil	Nil	3.5	3.1	3	3	Continue	Continue	Continue
33	Mahalakshmi	23	46937	2nd std	Housewife	Lower	P1L1 A1	1	Early labour	No	No	No	2yrs	LN	Postplacental	Yes	Yes	Yes	Nil	Nil	Nil	5.2	5.9	5.7	5.6	Continue	Continue	Continue
34	Vasuki	27	46939	12th std	Housewife	Upper lower	P1L1	1	Before LSCS	Yes	Yes	No	3yrs	LSCS	Intracaesarean	Yes	Yes	Yes	Pain abdomen	Nil	Nil	2.2	1.8	1.8	1.7	Continue	Continue	Continue
35	Shakila	29	46942	12th std	Housewife	Upper lower	P1L1	1	AN	Yes	Yes	No	2yrs	LN	Intracaesarean	Yes	Yes	Yes	Nil	Nil	Nil	4.2	3.8	3.7	3.5	Continue	Continue	Continue
36	Dhanalakshmi	22	46945	10th std	Housewife	Lower	P1L1	1	Early labour	No	Yes	No	4yrs	LN	Postplacental	Yes	Yes	Yes	Nil	Nil	Nil	2.6	2.9	3.2	3	Continue	Continue	Continue
37	Noorjahan	24	46949	M.A	Housewife	Lower middle	P2L2	2	AN	Yes	Yes	Yes-IUCD	3yrs	LSCS	Intracaesarean	Yes	Yes	Yes	HMB	HMB	Nil	3	2.6	2.6	2.5	Continue	Continue	Continue
38	Ambigai	20	46955	8th std	Housewife	Lower	P1L1	1	Before LSCS	No	No	No	Not sure	LSCS	Intracaesarean	Yes	Yes	Yes	Nil	Nil	Nil	1.9	2.3	2.2	2.4	Continue	Continue	Continue
39	Divya	21	46963	12th std	Housewife	Upper lower	P1L1	1	PP	No	No	No	4yrs	LN	Immediate PP	Yes	Yes	Yes	Nil	Nil	Nil	6.6	5.4	5.2	5.3	Continue	Continue	Continue
40	Afra	18	46958	4th std	Housewife	Lower	P1L1	1	Early labour	No	No	No	2yrs	LN	Post placental	Yes	Yes	Yes	Nil	Nil	Nil	3.2	3.6	3.4	3.4	Continue	Continue	Continue
41	Amala	29	46956	6th std	Housewife	Lower	P1L1	1	PP	No	No	No	3yrs	LN	Immediate PP	**No**						4.2						
42	Ramya	25	46967	11th std	Housewife	Upper lower	P1L1	1	Early labour	No	Yes	No	4yrs	LN	Postplacental	Yes	Yes	Yes	Nil	Nil	Nil	3.9	4.1	3.8	3.7	Continue	Continue	Continue
43	Baby	21	46974	10th std	Housewife	Lower	P1L1	1	AN	Yes	Yes	No	3yrs	LSCS	Intracaesarean	Yes	Yes	Yes	Nil	Nil	Nil	1.6	1.5	1.5	1.4	Continue	Continue	Continue
44	Soundarya	26	46978	DT. Ed	Employed	Lower middle	P2L2	2	AN	Yes	Yes	Yes-IUCD	Till permanent	LN	Postplacental	Yes	Yes	Yes ®	Nil	Nil	Nil	3.8	3.6	3.5	3.3	Continue	Continue	**REMOVAL**
45	Mohanapriya	21	46972	10th std	Housewife	Upper lower	P2L1	1	PP	No	No	No	3yrs	LN	Immediate PP	Yes			**Par. EXPULSION**			6.9						
46	Lakshmiprabha	26	46969	6th std	Housewife	Lower	P1L1	1	AN	Yes	Yes	No	3yrs	LSCS	Intracaesarean	Yes	Yes	Yes	Nil	Nil	Nil	1.4	1.6	1.4	1.4	Continue	Continue	Continue
47	Kalavathi	24	46981	3rd std	Housewife	Lower	P2L2	2	PP	No	No	No	Till permanent sterilzation	LN	Immediate PP	Yes	Yes	Yes	Nil	Nil	Nil	4.1	4.9	5.1	5.1	Continue	Continue	Continue
48	Fathima	32	46984	7th std	Housewife	Lower	P2L2 A1	2	AN	Yes	Yes	Yes-IUCD	2yrs	LSCS	Intracaesarean	Yes	Yes	**No**	Nil	Nil		1.9	1.7	1.7		Continue	Continue	
49	Saraswathi	29	46988	8th std	Housewife	Lower	P2L2	2	AN	Yes	Yes	Yes-IUCD	Till permanent sterilzation	LN	Postplacental	Yes	Yes	Yes	Nil	Nil	Nil	6.1	5.8	5.7	5.9	Continue	Continue	Continue

Sl. No	Name	Age	IP No.	Education	Occupation	SES	Parity	No. of living children	Time of counselling	Awareness of IUCD		Previous contraceptive use	Intended duration of IUCD use	Mode of delivery	Timing of insertion	Return for follow up/ removal			Complications			IUCD Endometrial distance				Willingness to continue		
										PPIUCD	Interval IUCD					6 weeks	3 months	6 months	6 weeks	3 months	6 months	Before discharge	6 weeks	3 months	6 months	6 weeks	3 months	6 months
50	Pushpalatha	25	46993	10th std	House wife	Upper lower	P2L2	2	PP	No	Yes	No	3yrs	LN	Immediate PP	Yes	Yes	Yes	Nil	Nil	Nil	3.8	4.3	4.5	4.5	Continue	Continue	Continue
51	Ramathal	35	46998	3rd std	House wife	Lower	P3L3 A1	3	Early labour	No	No	No	Till permanent sterilzation	LN	Postplacental	Yes	Yes	Yes	Nil	Nil	Nil	2.9	3.5	3.9	4	Continue	Continue	Continue
52	Vanitha	22	46991	12th std	House wife	Upper lower	P1L1	1	AN	Yes	Yes	No	3yrs	LSCS	Intracaesarean	**No**						2.2						
53	Banumathy	23	47011	11th std	House wife	Upper lower	P1L1	1	Early labour	No	Yes	No	2yrs	LN	Postplacental	Yes	Yes	Yes	Nil	Nil	Nil	4.1	3.5	3.4	3.2	Continue	Continue	Continue
54	Maheshwari	22	47019	Illiterate	House wife	Lower	P1L1	1	PP	No	No	No	3yrs	LN	Immediate PP	Yes	Yes	Yes	Nil	Nil	Nil	5.7	5.9	6	5.9	Continue	Continue	Continue
55	Subbulakshmi	25	47023	6th std	Emplo yed	Upper lower	P1L1	1	Before LSCS	No	Yes	No	3yrs	LSCS	Intracaesarean	Yes	Yes	Yes	Nil	Pain abdomen	Nil	4.2	3.9	3.6	3.5	Continue	Continue	Continue
56	Kiruthiga	24	47017	12th std	House wife	Upper lower	P1L1	1	AN	Yes	Yes	Yes-OCP	5yrs	LN	Postplacental	Yes	Yes	Yes	Nil	Nil	Nil	6.7	6.1	6.2	6.4	Continue	Continue	Continue
57	Aarthi	22	47025	6th std	House wife	Lower	P1L1	1	AN	Yes	Yes	No	Not sure	LSCS	Intracaesarean	Yes	Yes	Yes	Nil	Nil	Nil	2.3	2.5	2.4	2.4	Continue	Continue	Continue
58	Sivagami	31	47031	8th std	House wife	Upper lower	P2L2 A1	2	Early labour	Yes	Yes	Yes-IUCD	Till permanent sterilzation	LN	Postplacental	Yes	Yes	Yes ®	Nil	Nil	Nil	3.8	4.3	4.1	4.2	Continue	Continue	**REMOVAL**
59	Janani	21	47036	3rd std	House wife	Lower	P1L1	1	Before LSCS	No	No	No	3yrs	LSCS	Intracaesarean	Yes	Yes	Yes	Nil	Nil	HMB	1.3	1.6	1.5	1.6	Continue	Continue	Continue
60	Gowri	25	47043	Dip. In Engineer ing	House wife	Lower middle	P1L1 A1	1	AN	Yes	Yes	Yes-OCP	5yrs	LN	Postplacental	Yes	Yes	Yes	Nil	Nil	Nil	3.5	3.1	3	2.9	Continue	Continue	Continue
61	Shaila banu	20	47047	2nd std	House wife	Lower	P1L1	1	PP	No	No	No	2yrs	LN	Immediate PP	Yes			**EXPUL-SION**			7.2						
62	Lakshmipriya	23	47055	7th std	House wife	Upper lower	P1L1	1	AN	Yes	Yes	No	3yrs	LN	Postplacental	Yes	**No**		Nil			4.9	3.5			Continue		
63	Leelavathy	21	47062	5th std	House wife	Lower	P1L1	1	Before LSCS	No	No	No	5yrs	LSCS	Intracaesarean	Yes	Yes	Yes	Nil	Nil	Nil	2.6	2.8	2.7	2.7	Continue	Continue	Continue
64	Padmini	24	47067	10th std	House wife	Upper lower	P1L1	1	Before LSCS	Yes	Yes	No	3yrs	LSCS	Intracaesarean	Yes	Yes	Yes	Nil	Nil	Nil	3.1	2.9	2.9	2.7	Continue	Continue	Continue
65	Jothi	26	47059	12th std	House wife	Upper lower	P1L1	1	PP	No	Yes	Yes-condom	2yrs	LN	Immediate PP	Yes	Yes	Yes	Nil	Nil	Nil	4.5	4.9	4.2	4.1	Continue	Continue	Continue
66	Sowmya	18	47071	6th std	House wife	Lower	P1L1	1	AN	Yes	Yes	No	Not sure	LN	Postplacental	Yes	Yes	Yes	Nil	Nil	Nil	3.8	3.5	3.4	3.2	Continue	Continue	Continue
67	Madhubala	29	47076	4th std	House wife	Lower	P1L1	1	Early labour	No	No	No	2yrs	LN	Postplacental	Yes	Yes	Yes	Nil	Nil	Nil	3.2	3.9	4	4	Continue	Continue	Continue
68	Visalakshi	27	47078	9th std	House wife	Upper lower	P1L1 A1	1	AN	Yes	Yes	No	2yrs	LSCS	Intracaesarean	Yes	Yes	Yes	Missing strings	Nil	Nil	1.9	1.8	1.8	1.7	Continue	Continue	Continue
69	Rasheeda begum	23	47081	3rd std	House wife	Lower	P2L2	2	Early labour	No	No	No	2yrs	LN	Postplacental	Yes	Yes	Yes	Nil	Nil	Nil	3.6	4.5	4.3	4.2	Continue	Continue	Continue
70	Janaki	26	47083	10th std	House wife	Upper lower	P1L1	1	Early labour	Yes	Yes	No	3yrs	LN	Postplacental	Yes	Yes	Yes	Nil	Nil	Nil	4.1	3.4	3.3	3.3	Continue	Continue	Continue
71	Mallika	20	47089	5th std	House wife	Lower	P1L1	1	Before LSCS	No	Yes	No	5yrs	LSCS	Intracaesarean	Yes	Yes	Yes	Nil	Nil	Nil	2.2	1.9	1.9	1.8	Continue	Continue	Continue
72	Sundari	32	47093	3rd std	House wife	Lower	P3L3 A1	3	PP	No	No	No	Till permanent sterilzation	LN	Immediate PP	Yes	Yes	Yes	Nil	Nil	Nil	4.9	5.6	5.7	5.9	Continue	Continue	Continue
73	Gandhimathi	24	47098	8th std	House wife	Lower	P1L1	1	Early labour	No	Yes	No	3yrs	LN	Postplacental	Yes	Yes	**No**	Nil	Nil		5.8	4.9	4.8		Continue	Continue	
74	Muthammal	34	47092	Illiterate	House wife	Lower	P2L2 A2	2	Before LSCS	No	No	No	Till permanent sterilzation	LSCS	Intracaesarean	Yes	Yes	Yes	Nil	Nil	Nil	1.2	1.4	1.4	1.3	Continue	Continue	Continue

Sl. No	Name	Age	IP No.	Education	Occupation	SES	Parity	No. of living children	Time of counselling	Awareness of IUCD		Previous contraceptive use	Intended duration of IUCD use	Mode of delivery	Timing of insertion	Return for follow up/ removal			Complications			IUCD Endometrial distance				Willingness to continue		
										PPIUCD	Interval IUCD					6 weeks	3 months	6 months	6 weeks	3 months	6 months	Before discharge	6 weeks	3 months	6 months	6 weeks	3 months	6 months
75	Shifa	22	47117	6th std	House wife	Lower	P1L1	1	PP	No	No	No	2yrs	LN	Immediate PP	Yes	Yes	Yes	Pain abdomen	Nil	Nil	4.6	4.9	5.2	5.1	Continue	Continue	Continue
76	Nithya	26	47122	8th std	House wife	Lower	P1L1	1	Early labour	No	Yes	No	5yrs	LN	Postplacental	Yes	Yes	Yes	Nil	Nil	HMB	3.3	3.1	3	2.9	Continue	Continue	Continue
77	Shanthi	21	47125	12th std	House wife	Upper lower	P1L1	1	Before LSCS	Yes	Yes	No	4yrs	LSCS	Intracaesarean	Yes	Yes	Yes	Nil	Nil	Nil	2.1	2.3	2.2	2.2	Continue	Continue	Continue
78	Devi priya	23	47133	10th std	House wife	Upper lower	P1L1	1	PP	Yes	Yes	No	5yrs	LN	Immediate PP	Yes	Yes	Yes	Nil	Nil	Nil	4.3	3.5	3.6	3.6	Continue	Continue	Continue
79	Menaka	26	47138	5th std	House wife	Lower	P1L1	1	AN	Yes	Yes	No	2yrs	LN	Postplacental	Yes	Yes	Yes	Nil	Nil	Nil	3.9	3.7	3.6	3.5	Continue	Continue	Continue
80	Karthiga	28	47147	8th std	House wife	Lower	P1L1 A2	1	Before LSCS	No	No	No	2yrs	LSCS	Intracaesarean	Yes	Yes	Yes	Nil	HMB	Nil	1.7	1.6	1.5	1.6	Continue	Continue	Continue
81	Gayathri	29	47149	10th std	House wife	Upper lower	P2L2	2	AN	Yes	Yes	Yes-IUCD	Till permanent sterilzation	LSCS	Intracaesarean	Yes	Yes	Yes	Nil	Nil	Nil	3.4	3.8	3.9	3.8	Continue	Continue	Continue
82	Dhanabakiyam	24	47156	9th std	House wife	Upper lower	P2L2	2	AN	Yes	Yes	No	Till permanent sterilzation	LN	Postplacental	Yes	Yes	Yes	Nil	Nil	Nil	6.6	6.7	6.4	6.3	Continue	Continue	Continue
83	Mylathal	36	47157	Illiterate	House wife	Lower	P4L4	4	Early labour	No	No	No	Till permanent sterilzation	LN	Postplacental	Yes	Yes	**No**	Nil	Nil		3.9	4.5	4.6		Continue	Continue	
84	Faridha begum	21	47145	12th std	House wife	Upper lower	P1L1	1	AN	Yes	Yes	No	3yrs	LSCS	Intracaesarean	Yes	Yes	Yes	Nil	Nil	Nil	1.6	2.2	2.4	2.3	Continue	Continue	Continue
85	Nancy	26	47164	10th std	House wife	Upper lower	P1L1	1	PP	No	No	No	3yrs	LN	Immediate PP	Yes	Yes	Yes	Nil	Nil	Nil	3.4	3.2	3.1	3.4	Continue	Continue	Continue
86	Madhubala	25	47168	6th std	House wife	Lower	P1L1	1	Early labour	No	No	No	Not sure	LN	Postplacental	Yes	Yes	Yes	Nil	Nil	Nil	4.1	3.9	3.7	3.7	Continue	Continue	Continue
87	Kalaimathi	25	47174	5th std	House wife	Lower	P1L1	1	Before LSCS	No	No	No	3yrs	LSCS	Intracaesarean	Yes	Yes	Yes	Nil	Nil	Nil	1.5	1.4	1.4	1.3	Continue	Continue	Continue
88	Banumathy	23	47181	8th std	House wife	Lower	P1L1	1	PP	No	No	No	2yrs	LN	Immediate PP	Yes	Yes	Yes	Nil	Nil	Nil	6.2	6.6	6.7	6.6	Continue	Continue	Continue
89	Dharshini	27	47186	7th std	House wife	Lower	P1L1	1	AN	Yes	Yes	No	2yrs	LSCS	Intracaesarean	Yes	Yes	Yes	Nil	Pain abdomen	Pain abdomen	1.4	1.9	1.8	1.8	Continue	Continue	Continue
90	Sindhu	29	47193	12th std	House wife	Upper lower	P1L1	1	AN	Yes	Yes	Yes-OCP	2yrs	LN	Postplacental	Yes	Yes	Yes	Nil	Nil	Nil	4.6	4.3	3.9	3.8	Continue	Continue	Continue
91	Manimegalai	24	47198	3rd std	House wife	Lower	P2L2	2	Before LSCS	No	No	No	Till permanent sterilzation	LSCS	Intracaesarean	Yes	Yes	**No**	Missing strings	Nil		3.4	3.2	3.1		Continue	Continue	
92	Lakshmi priya	24	47216	BSc Tamil literature	Employed	Lower middle	P1L1	1	AN	Yes	Yes	Yes-OCP	5yrs	LSCS	Intracaesarean	Yes	Yes	Yes	HMB	Nil	Nil	2.3	2.2	2.1	2.1	Continue	Continue	Continue
93	Chitra	21	47236	5th std	House wife	Lower	P1L1	1	PP	No	No	No	5yrs	LN	Immediate PP	Yes	Yes	Yes	Nil	Nil	Nil	4.9	4.7	4.2	4.1	Continue	Continue	Continue
94	Ezhilarasi	23	47229	7th std	House wife	Lower	P1L1 A1	1	Early labour	No	No	No	4yrs	LN	Postplacental	Yes	Yes	Yes	Nil	Nil	Nil	3.5	3.1	3.3	3.2	Continue	Continue	Continue
95	Amudha	26	47238	10th std	House wife	Upper lower	P1L1	1	AN	Yes	Yes	Yes-condom	3yrs	LN	Postplacental	Yes	Yes	Yes	Nil	Nil	Nil	4.2	4.7	4.8	4.6	Continue	Continue	Continue
96	Praveena	28	47247	12th std	House wife	Upper lower	P1L1	1	AN	Yes	Yes	No	Not sure	LN	Postplacental	Yes	Yes	Yes	Nil	Nil	Nil	7.1	6.5	6.4	6.5	Continue	Continue	Continue
97	Radha	23	47251	6th std	House wife	Lower	P1L1	1	AN	Yes	Yes	No	3yrs	LSCS	Intracaesarean	Yes	**No**		Nil			1.9	2.2			Continue		
98	Vani	27	47259	8th std	House wife	Lower	P3L2	2	PP	No	No	No	3yrs	LN	Immediate PP	Yes			**EXPULSION**			8.3						
99	Mangala mary	22	47266	5th std	House wife	Lower	P1L1	1	Early labour	No	No	No	2yrs	LN	Postplacental	Yes	Yes	Yes	Nil	Nil	Nil	4.1	4.5	4.4	4.3	Continue	Continue	Continue

Sl. No	Name	Age	IP No.	Education	Occupation	SES	Parity	No. of living children	Time of counselling	Awareness of IUCD		Previous contraceptive use	Intended duration of IUCD use	Mode of delivery	Timing of insertion	Return for follow up/ removal			Complications			IUCD Endometrial distance				Willingness to continue		
										PPIUCD	Interval IUCD					6 weeks	3 months	6 months	6 weeks	3 months	6 months	Before discharge	6 weeks	3 months	6 months	6 weeks	3 months	6 months
100	Kanaga	31	47272	Illiterate	Housewife	Lower	P2L2	2	Before LSCS	No	No	No	Till permanent sterilzation	LSCS	Intracaesarean	Yes	Yes	Yes	Nil	Nil	HMB	3.4	3.3	3.3	3.2	Continue	Continue	Continue
101	Gisha	20	47279	8th std	Housewife	Upper lower	P1L1	1	Before LSCS	No	No	No	2yrs	LSCS	Intracaesarean	Yes	Yes	Yes	Nil	Nil	Nil	2.7	2.4	2.5	2.5	Continue	Continue	Continue
102	Durga devi	22	47284	6th std	Housewife	Lower	P1L1	1	PP	No	No	No	3yrs	LN	Immediate PP	Yes	Yes	Yes	Nil	Nil	Nil	3.6	3.9	4.1	4	Continue	Continue	Continue
103	Madhu preetha	24	47288	9th std	Housewife	Upper lower	P1L1	1	AN	Yes	Yes	No	2yrs	LN	Postplacental	Yes	Yes	Yes	Nil	Nil	Nil	2.9	3	2.7	2.8	Continue	Continue	Continue
104	Umavathi	27	47293	4th std	Housewife	Lower	P1L1	1	Early labour	No	No	No	2yrs	LN	Postplacental	**No**						6.2						
105	Harini	19	47299	8th std	Housewife	Lower	P1L1	1	Before LSCS	No	Yes	No	5yrs	LSCS	Intra caesarean	Yes	Yes	Yes	Nil	Nil	Nil	2.2	2.5	2.5	2.4	Continue	Continue	Continue
106	Padmavathy	29	47311	3rd std	Housewife	Lower	P2L2	2	AN	Yes	Yes	Yes-IUCD	Till permanent sterilzation	LN	Postplacental	**No**						4.6						
107	Megala	20	47323	6th std	Housewife	Lower	P1L1	1	Before LSCS	No	No	No	5yrs	LSCS	Intracaesarean	Yes	Yes	Yes	Nil	Nil	Nil	4.3	3.9	3.7	3.1	Continue	Continue	Continue
108	Suriya	24	47342	12th std	Housewife	Upper lower	P1L1	1	AN	Yes	Yes	No	3yrs	LN	Postplacental	Yes	Yes	Yes	Nil	Nil	Nil	3.1	2.7	2.6	2.8	Continue	Continue	Continue
109	Sumithra	22	47328	10th std	Housewife	Upper lower	P1L1	1	AN	Yes	Yes	No	5yrs	LN	Postplacental	Yes	Yes	Yes	Nil	Nil	Nil	4.7	3.9	3.7	3.7	Continue	Continue	Continue
110	Bama	21	47345	9th std	Housewife	Lower	P1L1	1	Before LSCS	No	No	No	4yrs	LSCS	Intracaesarean	Yes	Yes	Yes	Pain abdomen	Nil	Nil	1.7	2.6	2.5	2.3	Continue	Continue	Continue
111	Poonghulazhi	32	47351	B.A	Employed	Upper middle	P2L2	2	AN	Yes	Yes	Yes-condom	Till permanent sterilzation	LN	Postplacental	Yes	Yes	Yes	Nil	Nil	Nil	2.9	3.2	3.5	3.3	Continue	Continue	Continue
112	Nivedha	26	47352	6th std	Housewife	Lower	P1L1	1	AN	Yes	Yes	No	3yrs	LN	Postplacental	Yes	Yes	Yes	Nil	Nil	Nil	3.6	2.9	2.7	2.6	Continue	Continue	Continue
113	Geetha	24	47367	4th std	Housewife	Lower	P1L1	1	Before LSCS	No	No	No	3yrs	LSCS	Intracaesarean	Yes	Yes	Yes	Nil	Nil	Nil	2.9	2.1	1.9	2.5	Continue	Continue	Continue
114	Bharathi	28	47374	6th std	Housewife	Lower	P1L1	1	Early labour	No	No	No	2yrs	LN	Postplacental	Yes	Yes	Yes	Nil	Nil	Nil	3	2.7	2.5	3	Continue	Continue	Continue
115	Sumathy	19	47388	10th std	Housewife	Lower	P1L1	1	PP	Yes	Yes	Yes-condom	5yrs	LN	Immediate PP	Yes	Yes	Yes	Nil	Nil	Nil	7	6.2	6.1	6.1	Continue	Continue	Continue
116	Parvathy	21	47393	8th std	Housewife	Upper lower	P1L1	1	Early labour	No	Yes	No	4yrs	LN	Postplacental	Yes	Yes	Yes	Nil	HMB	Nil	3.3	3.5	3.4	3.4	Continue	Continue	Continue
117	Parimala	25	47376	Illiterate	Housewife	Lower	P2L2	2	AN	Yes	Yes	No	2yrs	LN	Postplacental	Yes	Yes	Yes	Nil	Nil	Nil	4.6	3.9	3.7	3.6	Continue	Continue	Continue
118	Sheela	29	47382	12th std	Housewife	Upper lower	P1L1	1	PP	No	Yes	No	3yrs	LN	Immediate PP	Yes	Yes	Yes	Nil	HMB	Nil	5.9	6.2	6.3	6	Continue	Continue	Continue
119	Devilakshmi	30	47394	10th std	Housewife	Lower middle	P2L2	2	Before LSCS	No	Yes	No	Till permanent sterilzation	LSCS	Intracaesarean	Yes	Yes	Yes ®	Nil	Nil	Nil	2.1	1.8	1.5	1.6	Continue	Continue	**REMOVAL**
120	Jeyanthi	26	47387	5th std	Housewife	Lower	P1L1	1	Before LSCS	No	No	Yes-IUCD	3yrs	LSCS	Intracaesarean	Yes			**EXPULSION**			6						
121	Rekha	24	47398	7th std	Housewife	Upper lower	P1L1 A1	1	PP	No	No	No	4yrs	LN	Immediate PP	Yes	Yes	**No**	Nil	Nil		5.9	6.1	6.5		Continue	Continue	
122	Ganga	22	47407	3rd std	Housewife	Lower	P1L1	1	Before LSCS	No	No	No	2yrs	LSCS	Intracaesarean	Yes	Yes	Yes	Nil	Nil	Nil	4.7	3.5	3.7	3.9	Continue	Continue	Continue
123	Jeeva	21	47413	10th std	Housewife	Upper lower	P1L1	1	AN	Yes	Yes	Yes-condom	3yrs	LSCS	Intracaesarean	Yes	Yes	Yes	Nil	Nil	Nil	2	2.3	2.1	2.1	Continue	Continue	Continue
124	Kanagalakshmi	23	47419	9th std	Housewife	Upper lower	P1L1	1	PP	No	No	No	4yrs	LN	Immediate PP	Yes	Yes	Yes	Nil	Nil	Nil	3.9	5.5	5.3	5.9	Continue	Continue	Continue

Sl. No	Name	Age	IP No.	Education	Occupation	SES	Parity	No. of living children	Time of counselling	Awareness of IUCD		Previous contraceptive use	Intended duration of IUCD use	Mode of delivery	Timing of insertion	Return for follow up/ removal			Complications			IUCD Endometrial distance				Willingness to continue		
										PPIUCD	Interval IUCD					6 weeks	3 months	6 months	6 weeks	3 months	6 months	Before discharge	6 weeks	3 months	6 months	6 weeks	3 months	6 months
125	Nithya	26	47426	5th std	House wife	Lower	P2L2	2	Early labour	No	No	No	Not sure	LN	Postplacental	Yes			**Par. EXPULSION**			9.5						
126	Dhanam	28	47445	6th std	House wife	Lower	P3L3	3	Early labour	No	No	No	Till permanent sterilzation	LN	Postplacental	Yes ®			Nil			3.9	4.9			**REMOVAL**		
127	Radhika	24	47451	8th std	House wife	Upper lower	P1L1	1	PP	No	No	No	5yrs	LN	Immediate PP	Yes	Yes	Yes	Nil	Nil	Nil	3.7	4.6	5.2	4.9	Continue	Continue	Continue
128	Umarani	22	47463	9th std	House wife	Upper lower	P1L1	1	AN	Yes	Yes	No	3yrs	LN	Postplacental	Yes	Yes	Yes	Nil	Nil	Nil	2.8	2.6	3.5	3.7	Continue	Continue	Continue
129	Monica	21	47471	5th std	House wife	Lower	P1L1	1	Before LSCS	No	No	No	3yrs	LSCS	Intracaesarean	Yes	Yes	Yes	Nil	HMB	Nil	1.1	1.5	1.3	1.4	Continue	Continue	Continue
130	Ayesha	18	47476	9th std	House wife	Upper lower	P1L1	1	AN	Yes	Yes	No	3yrs	LN	Postplacental	Yes	Yes	Yes	Nil	Nil	Nil	5.8	6.1	6.3	6	Continue	Continue	Continue
131	Indhumathi	20	47479	2nd std	House wife	Lower	P3L2	2	AN	Yes	Yes	Yes-IUCD	Till permanent sterilzation	LN	Postplacental	Yes	Yes	Yes	Nil	Nil	Pain abdomen	4.9	5.8	5.7	5.5	Continue	Continue	Continue
132	Leela	28	47482	4th std	House wife	Lower	P1L1	1	Early labour	No	No	No	2yrs	LN	Postplacental	Yes	**No**		Nil			5.1	4.9			Continue		
133	Omana	25	47489	7th std	House wife	Upper lower	P2L2	2	PP	Yes	Yes	No	Till permanent sterilzation	LN	Immediate PP	Yes	Yes		Nil	**EXPUL-SION**		8.1	13.4			Continue	**Re-insertion**	
134	Pragathi	29	47497	3rd std	House wife	Lower	P1L1	1	Before LSCS	No	No	No	2yrs	LSCS	Intracaesarean	Yes	Yes	Yes	Nil	Nil	Nil	1.8	2.6	2.5	2.2	Continue	Continue	Continue
135	Jeyanthi	26	47508	12th std	House wife	Upper lower	P1L1	1	AN	Yes	Yes	Yes-OCP	4yrs	LN	Postplacental	Yes	Yes	Yes	Nil	Nil	Nil	3.6	2.9	2.8	2.6	Continue	Continue	Continue
136	Ganga devi	19	47518	4th std	House wife	Lower	P1L1	1	Before LSCS	No	No	No	5yrs	LSCS	Intracaesarean	Yes	Yes	Yes	Nil	Nil	Nil	3.1	2.3	2.2	2	Continue	Continue	Continue
137	Subha	22	47521	5th std	House wife	Lower	P1L1	1	PP	No	No	No	5yrs	LN	Immediate PP	Yes	Yes	Yes	Nil	Nil	Nil	5.2	6.5	6.3	6	Continue	Continue	Continue
138	Prema	24	47517	5th std	House wife	Lower	P1L1	1	AN	Yes	Yes	No	3yrs	LSCS	Intracaesarean	Yes	Yes	Yes	Nil	Nil	Nil	2.9	3.2	3.1	3.5	Continue	Continue	Continue
139	Sivadharshini	22	47531	12th std	House wife	Upper lower	P1L1	1	PP	No	No	Yes-condom	2yrs	LN	Immediate PP	Yes	Yes	Yes	Nil	Nil	Nil	3.2	4.5	3.9	3.8	Continue	Continue	Continue
140	Bindhu	21	47536	6th std	House wife	Lower	P1L1	1	Early labour	No	No	No	5yrs	LN	Postplacental	Yes	Yes	Yes	Nil	Nil	HMB	2.9	3.2	3	3.1	Continue	Continue	Continue
141	Vimala	24	47539	5th std	House wife	Lower	P1L1	1	Early labour	No	No	No	2yrs	LN	Postplacental	Yes	Yes	Yes	Nil	Nil	Nil	4.2	4.7	5.5	4.9	Continue	Continue	Continue
142	Muthumaari	33	47543	9th std	House wife	Upper lower	P3L3	3	AN	Yes	Yes	Yes-IUCD	Till permanent sterilzation	LSCS	Intracaesarean	Yes	Yes	Yes	Missing strings	Nil	Nil	1.4	1.3	1.3	1.2	Continue	Continue	Continue
143	Banupriya	29	47549	4th std	House wife	Lower	P1L1	1	Before LSCS	No	No	No	2yrs	LSCS	Intracaesarean	Yes	Yes	Yes	Nil	Nil	Nil	3.5	2.9	2.7	3	Continue	Continue	Continue
144	Shanthini	23	47556	3rd std	House wife	Lower	P1L1	1	Before LSCS	No	No	No	3yrs	LSCS	Intracaesarean	Yes	Yes	Yes	Nil	Nil	HMB	3	4.5	4.4	4.1	Continue	Continue	Continue
145	Daisy rani	24	47552	10th std	House wife	Upper lower	P1L1	1	PP	Yes	Yes	No	Not sure	LN	Immediate PP	Yes	Yes		Nil	**EXPUL-SION**		5.9	10.5			Continue		
146	Caroline	19	47558	12th std	House wife	Upper lower	P1L1	1	AN	Yes	Yes	No	3yrs	LN	Postplacental	Yes	Yes	Yes	Nil	Nil	Nil	2.9	3.1	3.7	3.5	Continue	Continue	Continue
147	Meenakshi	25	47567	3rd std	House wife	Lower	P1L1	1	Early labour	No	No	No	4yrs	LN	Postplacental	Yes	Yes	Yes	Nil	Nil	Nil	3.8	3.1	2.9	2.7	Continue	Continue	Continue
148	Parameshwari	24	47571	DT. Ed	House wife	Lower middle	P1L1	1	AN	Yes	Yes	Yes-OCP	3yrs	LSCS	Intracaesarean	Yes	Yes	Yes	Pain abdomen	Nil	Nil	1.1	1.3	1.3	1.2	Continue	Continue	Continue
149	Shakila	26	47579	5th std	House wife	Lower	P2L2	2	Before LSCS	No	No	No	Till permanent sterilzation	LSCS	Intracaesarean	Yes	Yes	Yes	Nil	Nil	Nil	3.6	4.5	4.2	4.7	Continue	Continue	Continue

Sl. No	Name	Age	IP No.	Education	Occupation	SES	Parity	No. of living children	Time of counselling	Awareness of IUCD		Previous contraceptive use	Intended duration of IUCD use	Mode of delivery	Timing of insertion	Return for follow up/ removal			Complications			IUCD Endometrial distance				Willingness to continue		
										PPIUCD	Interval IUCD					6 weeks	3 months	6 months	6 weeks	3 months	6 months	Before discharge	6 weeks	3 months	6 months	6 weeks	3 months	6 months
150	Sandhya	22	47582	6th std	House wife	Lower	P1L1	1	PP	No	No	No	2yrs	LN	Immediate PP	Yes	Yes	Yes	Nil	Nil	Nil	4.3	5.9	5.5	5.4	Continue	Continue	Continue
151	Angalakshmi	31	47589	9th std	House wife	Upper lower	P2L1	1	AN	Yes	Yes	Yes-IUCD	2yrs	LSCS	Intracaesarean	Yes	Yes	**No**	Nil	Nil		3.2	2.2	2.1		Continue	Continue	
152	Megala	21	47591	8th std	House wife	Upper lower	P1L1	1	AN	Yes	Yes	No	5yrs	LSCS	Intracaesarean	Yes	Yes	Yes ®	Nil	Nil	Nil	1.9	3.1	2.9	2.7	Continue	Continue	**REMOVAL**
153	Nivedha priya	23	47597	4th std	House wife	Lower	P1L1	1	Early labour	No	No	No	4yrs	LN	Postplacental	Yes	Yes	Yes	Nil	Pain abdomen	Nil	3.6	4.1	4.7	4.5	Continue	Continue	Continue
154	Jeyalakshmi	22	47599	7th std	House wife	Upper lower	P1L1	1	AN	Yes	Yes	No	Not sure	LN	Postplacental	Yes	Yes	Yes	Nil	Nil	Nil	2.8	3.1	2.5	2.3	Continue	Continue	Continue
155	Jothisri	23	47607	5th std	House wife	Lower	P1L1	1	Early labour	No	No	No	3yrs	LN	Postplacental	Yes	Yes ®		HMB	HMB		4.8	3.5	3.4		Continue	**REMOVAL**	
156	Pavithra	24	47613	8th std	House wife	Lower	P1L1	1	Before LSCS	No	Yes	No	3yrs	LSCS	Intracaesarean	Yes	Yes	Yes	Nil	Nil	Nil	3.7	3.6	4.1	4.5	Continue	Continue	Continue
157	Anandhi	24	47616	6th std	House wife	Lower	P1L1	1	Early labour	No	No	No	5yrs	LN	Postplacental	Yes	Yes	Yes	Nil	HMB	HMB	2.9	2.6	2.2	2.1	Continue	Continue	Continue
158	Rufsana	23	47623	Illiterate	House wife	Lower	P3L3 A1	3	PP	No	Yes	No	Till permanent sterilzation	LN	Immediate PP	Yes	Yes	Yes	Nil	Nil	Nil	4.9	3.6	3.5	3.2	Continue	Continue	Continue
159	Prabhavathi	22	47629	12th std	House wife	Upper lower	P1L1	1	AN	Yes	Yes	Yes-condom	3yrs	LN	Postplacental	Yes	Yes	Yes	Nil	Nil	Nil	3.2	4	3.8	3.7	Continue	Continue	Continue
160	Manoranjitham	26	47633	10th std	House wife	Upper lower	P1L1	1	AN	Yes	Yes	No	2yrs	LN	Postplacental	Yes	Yes	Yes	Pain abdomen	Nil	Nil	5.1	4.2	3.9	4.1	Continue	Continue	Continue
161	Kalpana devi	28	47637	9th std	House wife	Upper lower	P1L1	1	AN	Yes	Yes	No	2yrs	LSCS	Intracaesarean	Yes	Yes	Yes	Nil	Nil	Nil	3.1	2.2	2.1	2.1	Continue	Continue	Continue
162	Balamani	22	47639	5th std	House wife	Lower	P1L1	1	PP	No	No	No	3yrs	LN	Immediate PP	Yes	Yes	Yes	Nil	Nil	Nil	6	5.4	5.5	5.9	Continue	Continue	Continue
163	Narmadha	23	47644	12th std	Employed	Lower middle	P1L1	1	AN	Yes	Yes	Yes-condom	5yrs	LN	Postplacental	Yes	Yes	Yes	Nil	Nil	Nil	3.9	4.8	4.5	4.7	Continue	Continue	Continue
164	Poongodi	28	47651	3rd std	House wife	Lower	P1L1	1	PP	No	No	No	2yrs	LN	Immediate PP	Yes	Yes	Yes	Nil	Nil	Nil	5.7	4.4	4.3	4	Continue	Continue	Continue
165	Saranya	27	47668	4th std	House wife	Lower	P1L1	1	Before LSCS	No	No	No	3yrs	LSCS	Intracaesarean	Yes	Yes	Yes	Nil	Nil	Nil	4.3	4.1	4.6	4.4	Continue	Continue	Continue
166	Thilakam	25	47689	9th std	House wife	Upper lower	P1L1	1	AN	Yes	Yes	No	3yrs	LSCS	Intracaesarean	Yes	Yes	Yes	Nil	Nil	Nil	3.2	2.4	2.3	2.1	Continue	Continue	Continue
167	Shanthi priya	22	47672	8th std	House wife	Upper lower	P1L1	1	AN	Yes	Yes	No	4yrs	LSCS	Intracaesarean	Yes	Yes	Yes	Nil	Nil	Nil	1.7	2.1	1.9	1.9	Continue	Continue	Continue
168	Poornima	24	47681	5th std	House wife	Lower	P1L1	1	Early labour	No	No	No	3yrs	LN	Postplacental	Yes	Yes	Yes	Nil	Nil	Nil	4.1	3.9	3.5	3.8	Continue	Continue	Continue
169	Usha	20	47693	10th std	House wife	Upper lower	P1L1	1	AN	Yes	Yes	Yes-condom	5yrs	LSCS	Intracaesarean	Yes	Yes	Yes	Nil	Nil	Nil	3.2	2.9	3.1	3.1	Continue	Continue	Continue
170	Bhuvaneshwari	27	47696	5th std	House wife	Lower	P1L1 A1	1	PP	No	No	No	Yes-3yrs	LN	Immediate PP	Yes			**EXPULSION**			8.8						
171	Niranjana	24	47714	8th std	House wife	Upper lower	P1L1	1	AN	Yes	Yes	No	Not sure	LN	Postplacental	Yes	Yes	Yes	Nil	Nil	Nil	7.3	7.8	7.1	7.5	Continue	Continue	Continue
172	Priyadharshini	19	47723	5th std	House wife	Lower	P1L1	1	Early labour	No	No	No	Not sure	LN	Postplacental	**No**						6.3						
173	Shamila	24	47729	3rd std	House wife	Lower	P3L3	3	Before LSCS	No	No	No	Till permanent sterilzation	LSCS	Intracaesarean	Yes	Yes	Yes	Nil	Nil	Nil	7.6	8.1	7.2	6.9	Continue	Continue	Continue
174	Muthuselvi	33	47736	4th std	House wife	Lower	P3L1	1	Early labour	No	No	No	2yrs	LN	Postplacental	Yes	Yes		Nil	**EXPULSION**		7.6	10.9			Continue		
175	Bhargavi	23	47741	12th std	Employed	Lower middle	P1L1	1	AN	Yes	Yes	No	3yrs	LSCS	Intracaesarean	Yes	Yes	Yes	Nil	Nil	Nil	3.4	2.9	2.8	2.8	Continue	Continue	Continue

Sl. No	Name	Age	IP No.	Education	Occupation	SES	Parity	No. of living children	Time of counselling	Awareness of IUCD		Previous contraceptive use	Intended duration of IUCD use	Mode of delivery	Timing of insertion	Return for follow up/ removal			Complications			IUCD Endometrial distance				Willingness to continue		
										PPIUCD	Interval IUCD					6 weeks	3 months	6 months	6 weeks	3 months	6 months	Before discharge	6 weeks	3 months	6 months	6 weeks	3 months	6 months
176	Nalini	19	47756	9th std	House wife	Upper lower	P1L1	1	AN	Yes	Yes	Yes-condom	5yrs	LSCS	Intracaesarean	Yes	Yes	Yes	Nil	Nil	Nil	2.9	3.1	3.3	3.2	Continue	Continue	Continue
177	Sabari	22	47759	8th std	House wife	Upper lower	P1L1	1	PP	Yes	Yes	No	3yrs	LN	Immediate PP	Yes	Yes	Yes	Nil	Nil	Nil	4.3	3.9	3.5	4.1	Continue	Continue	Continue
178	Kokila	21	47745	5th std	House wife	Lower	P1L1	1	Early labour	No	No	No	4yrs	LN	Postplacental	Yes	Yes	Yes	Missing strings	Nil	Nil	3.7	2.9	3	3.1	Continue	Continue	Continue
179	Malarvizhi	23	47766	6th std	House wife	Lower	P1L1	1	Before LSCS	No	Yes	No	3yrs	LSCS	Intracaesarean	Yes	Yes	**No**	Nil	Nil		6.5	5.9	5.7		Continue	Continue	
180	Kumari	21	47769	2nd std	House wife	Lower	P1L1	1	Early labour	No	No	No	2yrs	LN	Postplacental	Yes	Yes	Yes	Nil	Nil	Nil	2.9	3.1	3.5	3.3	Continue	Continue	Continue
181	Shameema	27	47775	11th std	House wife	Upper lower	P2L2	2	AN	Yes	Yes	Yes-IUCD	Till permanent sterilzation	LSCS	Intracaesarean	Yes	Yes	Yes	Nil	Nil	Nil	1.2	1.1	1	1.1	Continue	Continue	Continue
182	Indu priya	29	47783	12th std	House wife	Upper lower	P3L3	3	Early labour	Yes	Yes	No	Till permanent sterilzation	LN	Postplacental	Yes	Yes	Yes ®	Nil	Nil	Nil	4.1	3.2	3.3	3.5	Continue	Continue	**REMOVAL**
183	Dheepa	23	47794	10th std	House wife	Upper lower	P1L1	1	Before LSCS	No	Yes	No	3yrs	LSCS	Intracaesarean	Yes			**EXPUL-SION**			9						
184	Raga priya	24	47798	5th std	House wife	Lower	P1L1	1	PP	No	No	No	3yrs	LN	Immediate PP	Yes	**No**		Nil			4.9	3.8			Continue		
185	Bala sundari	30	47812	6th std	House wife	Lower	P2L2	2	AN	Yes	Yes	Yes-IUCD	Till permanent sterilzation	LSCS	Intracaesarean	Yes	Yes	Yes	Nil	Nil	Nil	3.5	3.3	3.3	3	Continue	Continue	Continue
186	Sathya priya	23	47822	8th std	House wife	Upper lower	P1L1	1	PP	No	Yes	No	3yrs	LN	Immediate PP	Yes	Yes	Yes	HMB	Nil	Nil	6.4	5.4	5.5	5.3	Continue	Continue	Continue
187	Kalyani	32	47829	4th std	House wife	Lower	P2L2	2	Early labour	No	No	No	Till permanent sterilzation	LN	Postplacental	Yes	Yes	Yes	Nil	Nil	Nil	5.1	4.2	4.1	4.2	Continue	Continue	Continue
188	Jeya sudha	22	47845	9th std	House wife	Upper lower	P1L1	1	PP	No	Yes	No	5yrs	LN	Immediate PP	Yes	Yes	Yes	Nil	Pain abdomen	Nil	6.7	6.2	6.7	6.5	Continue	Continue	Continue
189	Shanthini	24	47836	5th std	House wife	Lower	P1L1	1	AN	Yes	Yes	No	2yrs	LN	Postplacental	Yes	Yes	Yes	Nil	Nil	Nil	5.1	4.8	4.7	4.7	Continue	Continue	Continue
190	Noorjahan	18	47857	6th std	House wife	Lower	P1L1	1	AN	Yes	Yes	No	3yrs	LSCS	Intracaesarean	Yes	Yes	Yes	Pain abdomen	Nil	Nil	7.2	6.8	6.2	6.3	Continue	Continue	Continue
191	Priyanka	25	47865	9th std	House wife	Upper lower	P1L1	1	AN	Yes	Yes	No	5yrs	LSCS	Intracaesarean	**No**						3.2						
192	Nandini	24	47866	12th std	Emplo yed	Lower middle	P1L1	1	PP	No	No	Yes-condom	Not sure	LN	Immediate PP	Yes	Yes	Yes	Nil	Nil	Nil	4	4.5	4.7	4.6	Continue	Continue	Continue
193	Bhuvana	22	47871	4th std	House wife	Lower	P1L1	1	AN	No	No	No	4yrs	LN	Postplacental	Yes ®			Nil			4.2	4.6			**REMOVAL**		
194	Shalini	21	47883	6th std	House wife	Lower	P1L1	1	Early labour	No	Yes	No	5yrs	LN	Postplacental	Yes	Yes	Yes	Nil	Nil	Nil	3.7	3.9	4.1	3.8	Continue	Continue	Continue
195	Savithri	33	47887	12th std	House wife	Upper lower	P2L2	2	AN	Yes	Yes	Yes-IUCD	Till permanent sterilzation	LSCS	Intracaesarean	Yes	Yes	Yes	Nil	Nil	HMB	5.5	6.2	6.4	6.4	Continue	Continue	Continue
196	Deepika	25	47893	8th std	House wife	Upper lower	P1L1	1	AN	Yes	Yes	No	4yrs	LN	Postplacental	Yes	Yes	Yes	Nil	Nil	Nil	6.1	5.3	5.5	5.1	Continue	Continue	Continue
197	Siva priya	21	47899	5th std	House wife	Lower	P1L1	1	PP	No	No	No	3yrs	LN	Immediate PP	Yes	Yes	Yes	Nil	Nil	Nil	3	3.5	3.4	3			
198	Kowsalya	28	47907	6th std	House wife	Lower	P2L2	2	AN	Yes	Yes	Yes-IUCD	Till permanent sterilzation	LN	Postplacental	Yes	Yes	Yes	Nil	Nil	Nil	3.2	2.9	2.7	2.6	Continue	Continue	Continue
199	Vinodini	22	47924	B.A Tamil literature	House wife	Lower middle	P1L 1	1	Early labour	No	Yes	Yes-OCP	3yrs	LSCS	Intracaesarean	Yes	**No**		Nil			4.5	4.7			Continue		
200	Sathya	29	47939	8th std	House wife	Upper lower	P2L 2	2	AN	Yes	Yes	Yes-IUCD	Till permanent sterilzation	LSCS	Intracaesarean	Yes	Yes	Yes	HMB	HMB	Nil	3.5	3.3	3.2	3.1	Continue	Continue	Continue

KEY TO MASTER CHART

SES	-	Socio economic status
LN	-	Labour Natural
LSCS	-	Lower Segment Caesarean Section
OCP	-	Oral contraceptive pill
IUCD	-	Intrauterine contraceptive device
AN	-	Antenatal
PP	-	Postpartum
Immediate PP	-	Immediate postpartum
P	-	Parity
L	-	Living children
A	-	Abortion
Yes®	-	Return for Cu T removal
HMB	-	Heavy menstrual bleeding
Par Expulsion	-	Partial Expulsion